MATHEMATICA Policy Research

REPORT

FINAL

The Land Management for Investment (LMI) Project in Cabo Verde: Evaluation Design Report

June 22, 2017
Revised January 25, 2022

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ACKNOWLEDGEMENTS

We greatly appreciate the contributions of the many people whose input influenced this report. We especially thank Shauna Clarke and Jennifer Lisher, our project officers at the Millennium Challenge Corporation (MCC), for their support throughout developing the evaluation design. Also, at MCC, we thank Steve Dobrilovic for his invaluable insights about the project, Jill Pike for her helpful comments on the first draft of the report, and Barry Deren for information about the project's economic analysis. We also appreciate the helpful advice on gender-related issues provided by Rebecca Scherpelz and Michelle Adato of the MCC gender and social inclusion team and their consultants, Naomi Cassirer, and Elisa Scalise.

In Cabo Verde, we sincerely thank Carlos Varela, Ana Paula Fontainhas Mendes, Deolinda Reis, and Claudia Rodrigues of the Millennium Challenge Account–Cabo Verde (MCA-CV), as well as Kenny Miller, Joana Brito, and Sonia Schofield of the MCC Resident Country Mission, for sharing their knowledge about the project and for their generous hospitality and support during our April 2016 mission to Cabo Verde. We also thank the numerous Cabo Verdean organizations and individuals who met with us for their helpful insights during the missions.

Several other colleagues have made significant contributions to this report. At Mathematica, we thank Larissa Campuzano for reviewing and providing thoughtful comments on the draft report. We also thank Betty Teller, Molly Cameron, and Jim Cameron for their editorial review and Cindy Castro and Stefanie Barna's careful report formatting. Finally, our consultants Robbert Farber (land reform) and William Gartner (tourism) provided valuable subject matter expertise as we developed the report.

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I. INTRODUCTION

The current land rights system in Cabo Verde faces significant challenges due to the absence of a unified and conclusive source of information about land rights. The existing record systems—including the judicial registry (*registo predial*), municipal registries (*Registo matricial*), and systems for state-owned land—are incomplete and often contain outdated or inconsistent information. These systems typically do not include accurate maps to confirm land parcel parcels' size, location, and boundaries. The resulting confusion over ownership and boundaries has contributed to conflicts and legal disputes over land claims (AfDB 2012). Despite recent improvements, a time-consuming and costly land registration process is a continuing source of complaints from households and businesses alike (World Bank 2014; AfDB 2012). These challenges could be a significant constraint to increased investment in Cabo Verde—especially in the tourism industry—an area of competitive advantage and a potential engine of economic growth in the country (AfDB 2012).

To address some of these issues, the Millennium Challenge Corporation (MCC) funded a $17.3 million Land Management for Investment (LMI) project as part of its second compact with Cabo Verde (2012–2017). The project, implemented by the Government of Cabo Verde (GoCV) through the Millennium Challenge Account–Cabo Verde (MCA-CV), sought to create a comprehensive, reliable, and easily accessible system of land rights and boundaries information. This new system was expected to reduce the time required to establish legally secure property rights, facilitate increased domestic and foreign investment, and promote economic growth.

The LMI project consisted of two broad activities. Activity 1 established the legal and institutional foundations for the new land management system. It included the implementation of new or revised laws, regulations, and procedures for land management and creating a new integrated electronic land management information and transaction system (LMITS). This new system was intended for use by all entities involved in land administration and transactions in Cabo Verde. Activity 2 supported fieldwork to clarify parcel rights and boundaries on four targeted islands with high tourism investment potential—Sal, Boa Vista, São Vicente, and Maio. It used data gathered during the fieldwork to populate LMITS with rights and boundaries information and formally registered land rights in the *registo predial*, which confers the legal rights to the household.

MCC contracted with Mathematica to evaluate the LMI project. In this report, we describe our design for the evaluation—a mixed-methods performance evaluation that includes three complementary components. In combination, these components will enable us to address the key research questions for the evaluation. The components consist of the following:

1. A **pre-post analysis** will examine key outcomes changes before the MCC-funded project was implemented (2012–2014/2015[1]) and after (2018–2020) using secondary data. These data will primarily consist of annual island-level information (covering all four targeted islands and, for some outcomes, three other non-targeted islands) drawn from surveys

[1] 2012–2014 for the targeted island of Sal and 2012–2015 for the other three targeted islands: Boa Vista, Maio, and São Vicente.

conducted by the national statistics agency, the *Instituto Nacional de Estatística* (INE); LMITS; and archival and administrative data.

2. A **qualitative study** will provide rich information to interpret the findings from the pre-post analysis and enable us to answer a broader set of research questions. The qualitative study will rely on data collected through two rounds of in-depth interviews with key stakeholders at the national and island levels, including interviews with beneficiary households and businesses on targeted islands. Whereas the in-depth interviews will cover all four targeted islands (and, for some stakeholders, other non-targeted islands), we will conduct the household interviews primarily on Sal and Boa Vista, the two targeted islands where implementation reached the most households and where we expect to be able to identify all the key household typologies of interest.
3. **A multisite case study** of large tourism-related commercial investments on the four targeted islands, specifically hotel and condominium developments. This study will focus on these islands' tourism development investments (Zonas de Desenvolvimento Turístico Integral, or ZDTIs). It will examine planned and actual investments in the years leading up to the project and for several years after the end of the project to understand how the project affected these investments.

The following chapters provide context for the evaluation and describe the evaluation design in further detail. In Chapter II, we describe the activities and program logic of the LMI project. Chapter III summarizes what is known from the literature about the effects of land regularization programs. Chapter IV outlines the research questions that the evaluation seeks to answer and describes the evaluation design and data sources that will enable us to answer them. We also describe the data quality review plan for the LMI project monitoring indicators and the primary data we plan to collect. We conclude in Chapter V with a discussion of administrative details related to the evaluation.

II. OVERVIEW OF THE LMI PROJECT

This chapter provides context for the evaluation by describing the LMI project activities and the mechanisms through which they are expected to affect outcomes as set out in the project logic. We also describe the ex-ante economic rate of return (ERR) that MCC calculated to compare the costs and expected benefits of the project.

A. Overview of project activities

The LMI project consisted of two complementary activities designed to improve the reliability and efficiency of land rights in Cabo Verde. This section describes these activities' features, geographic scope, and implementation status.

1. Activities 1 and 2 and their key components

Activity 1 is the Legal and Institutional Foundations Activity, which comprises two components. The first component involved a series of national-level legal, regulatory, and procedural changes needed to implement the LMI project. MCA-CV supported GoCV in drafting and approving these changes, which were designed to strengthen the protection of land rights and facilitate the transition to an integrated system of land-related information envisaged by the project (the second component of Activity 1, discussed below). These changes began in 2012 and were completed in 2017.

The second component of Activity 1 is the establishment of LMITS, the new electronic land management system. This new system was designed to provide easy access to a single and comprehensive source of legal, fiscal, and cadastral information about land parcels in Cabo Verde, which could be used by all entities involved in land administration and transactions. For each parcel, the system was designed to include all relevant information about rights, restrictions, and responsibilities, as well as spatial geo-referenced information on parcel location and boundaries. *Nucleus Operacional da Sociedade de informação* (NOSi), the Cabo Verde e-government Institute, was responsible for the development of LMITS.

LMITS consists of two systems. The first system, LMITS 1, focuses on capturing existing information about land rights. LMITS 1 involves scanning and digitizing existing land records from different systems to create an indexed digital repository of property information (as part of Activity 1) and from the fieldwork conducted to clarify rights and boundaries on four islands (Activity 2, discussed below). The second system, LMITS 2, is a transactional piece of software designed to act as a "one-stop-shop" to improve the efficiency of land transactions. It includes several modules, including a municipality module (SIMLAND), a *registo predial* module (SIRP—this module used by the *Conservatoria*, the government agency responsible for maintaining the *registo predial*), and a notary module (SIM). This system was designed to enable individuals to officially register transactions electronically with all relevant entities. As of November 2021, LMITS 2 is installed on all targeted islands.

Activity 2, the Rights and Boundaries Activity aimed to populate LMITS with up-to-date property rights and boundaries information on four islands with high tourism development potential—Sal, Boa Vista, São Vicente, and Maio. The first step in this process was to integrate existing spatial information held by the state and local municipalities into LMITS, together with

orthophotos of the targeted areas. Next, following a public outreach and sensitization process in the targeted areas, the implementing team conducted parcel-by-parcel visits to map parcel boundaries precisely and gather documentation and information on land rights for each. A summary of the parcel's prior status and required next steps (if any) to finalize it were then posted publicly during a public consultation period. The parcel's status could then be finalized if (1) all the necessary information was obtained during the fieldwork and no objections were received during the public consultation period, (2) any required additional information (such as outstanding documents) was provided, and there were no subsequent objections, or (3) any objections had been resolved through a dispute-resolution mechanism supported by the project. Finally, parcels that had their status finalized were formally registered in the *registo predial* with the relevant information on land rights.

2. Gender context and related project features

The LMI project also ensured that the formalization process enabled equality in formalizing legitimate land rights and did not undermine women's informal rights. Cabo Verdean law provides property rights for married couples as well as couples in de facto unions, which are very common in Cabo Verde (a de facto union is a cohabiting relationship in which members of the couple are not married but share "a bed, table, and home"). In particular, the law provides for joint ownership by both partners in a marriage or a de facto union that meets the criteria for being "recognizable" (for example, related to the duration of the relationship and the age of the partners). However, in practice, many of these "legitimate" (legal) property rights were not recorded on formal land titles before the LMI project.

In addition, the legitimate property rights of men and women in marriages or recognizable de facto unions often were not reflected on the documents used as evidence of a claim of rights by the project (that is, the *matriz*, the existing *registo predial*, or other documents that can be provided by rights holders to the LMI project field teams to prove their right to a parcel). Instead, these documents typically named only the person who filed the administrative paperwork, which means that only one member of the couple had the evidence to claim a property right.[2] Therefore, it was possible that the legitimate property rights of many women and men in marriages or recognizable de facto unions would not be recorded correctly in the *registo predial* and on land titles, even after the project. It was even possible that, for properties not registered in the *registo predial*, the legitimate land rights of those not named in the evidentiary documents would be *weakened* by conveying titles only to those named.

The project had taken steps to address these issues. For the common situation of recognizable de facto unions not officially registered, the project was advising couples to either register their union (and gain formal recognition of the relationship and the property rights attached to it) or for the partner named on the title to donate a portion of that person's property right to the non-named partner (who would then be named as a co-owner). In addition, the new law, implemented in 2017, allowed for a married (or registered de facto) partner with legitimate

[2] Due to Cabo Verdean social norms around gender roles, it is more likely that the male member of a couple would be on an evidentiary document than a woman.

rights to be named on the title as a spouse rather than a joint owner. However, the rights and obligations attached to being named a spouse rather than an owner were not entirely clear.

3. Geographic scope of project activities and implementation status

Activity 1 was implemented on all islands in Cabo Verde, whereas the geographic scope and status of Activity 2 implementation varied across the four targeted islands (Table II.1). In Sal, Development Alternatives Incorporated (DAI) was the implementing contractor and implemented the intervention across the entire island. Implementation began in October 2014 and was completed in the third quarter of 2016. In Boa Vista and São Vicente, new implementing contractors—the Geoglobal/Servulo consortium and Municipia, respectively—implemented the intervention starting in the third quarter of 2016 and completed their activities in late 2017. Geoglobal/Servulo implemented activities across all areas of Boa Vista. Finally, the GoCV implemented the intervention on Maio through the National Institute for Land Management (*Instituto Nacional de Gestão do Território de Cabo Verde* [INGT]). INGT completed implementation across the entire island in 2017-2018.

Table II.1. Activity 2 implementation plans, by year and quarter

Island	Implementing contractor	Geographic focus	2014		2015				2016				2017			
			3	4	1	2	3	4	1	2	3	4	1	2	3	4
Sal	DAI	Entire island														
Boa Vista	Geoglobal/ Servulo	Entire island														
São Vicente	Municipia	ZDTIs and surrounds[a]														
Maio	INGT	Entire island														

[a] The extent to which additional areas beyond the ZDTIs will be covered in the post-implementation period depends on GoCV priorities.

[b] Implementation prioritized the town of Porto Ingles before extending to other areas.

B. Project logic

MCC has developed a high-level project logic model that illustrates how the two activities of the LMI project are linked to outcomes, including both short-term and interim or longer-term outcomes (Figure II.1). Activity 1 was expected to result in increased trust in and understanding of land rights in the short run by consolidating land rights information from multiple systems into a single integrated system. Once the new "one-stop-shop" LMITS system (LMITS 2) was operational, it was also expected to reduce the time associated with conducting land transactions. In the longer term, as individuals and investors gained increased confidence in the available land information and an easier means of formally transacting with it, Activity 1 was expected to result in growth in the formal land market and land transactions.

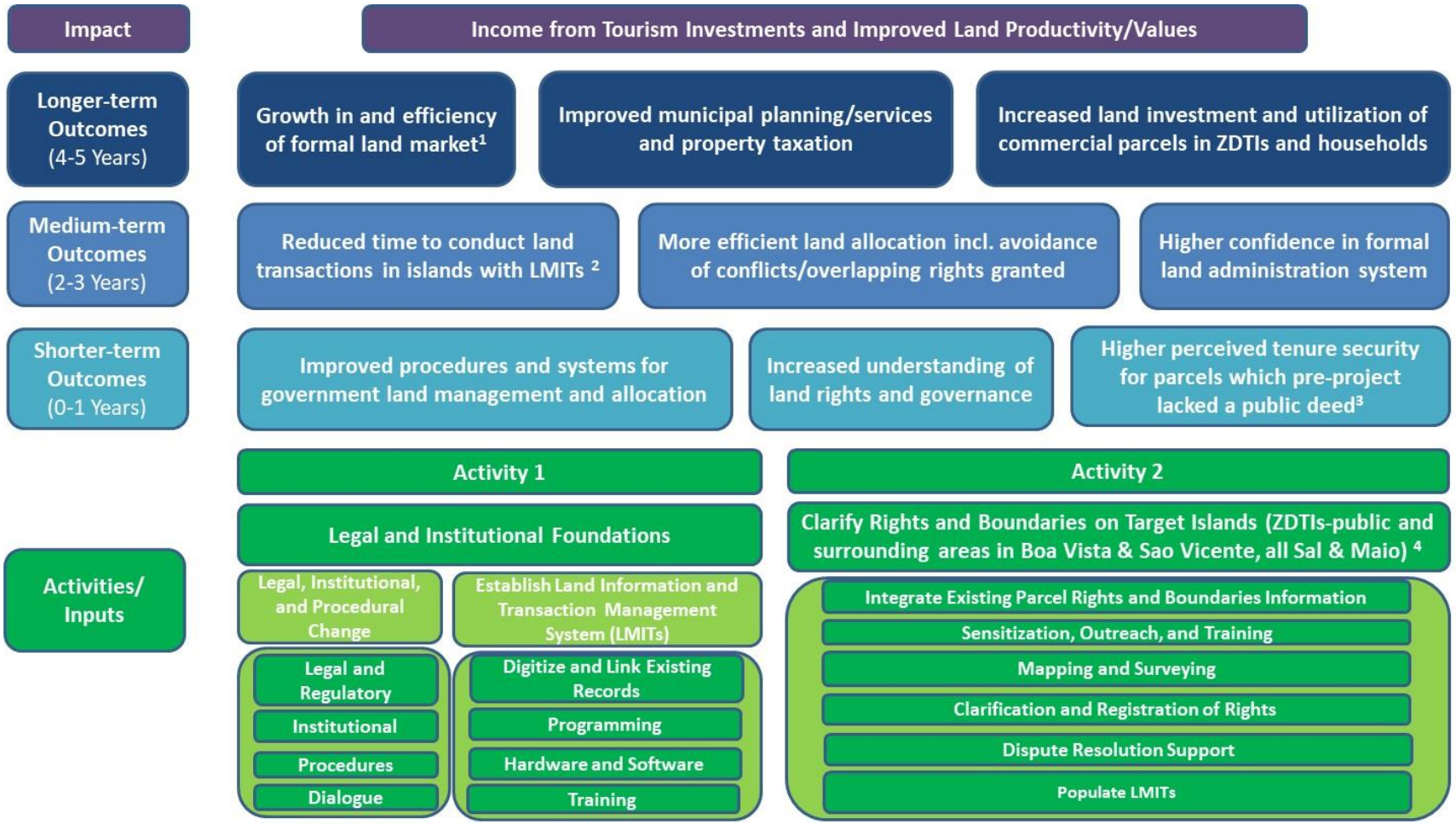
Activity 2 was expected to benefit a variety of actors in the land sector by increasing the efficiency of land management and the productive use of land. The Cabo Verdean state and local municipalities could benefit from more complete and accurate information about the land under their purview, which could lead to more effective allocation of public land to individuals and

investors. At the municipal level, this could also lead to improved urban planning and service provision and more effective property taxation. Commercial investors interested in large tourism-related investments on undeveloped land were expected to benefit from a reduction in the time required for them to obtain parcels for these investments, thus increasing the level of investment as well as land utilization and land values in areas suitable for tourism investment (primarily inside the ZDTIs).

Finally, the project was expected to increase the tenure security of individuals for whom it was low before the project, thereby increasing their land-related investment, land utilization, and land values. Registration in the *registo predial*, the project's goal, guarantees the legal right to a property and is, therefore, the highest form of tenure security. However, property owners who had a public deed were likely to have higher tenure security even if they had not taken the final steps to register in the *registo predial* (before the project, it was common for property owners to delay registration until they needed to transact the property, given the cost and effort of doing so). Therefore, the project's effects on tenure security are likely to be most significant for property owners who did not have public deeds, including some people in urban areas and small farmers in rural areas. Some of these properties might be registered in the *registo matricial*, which is primarily used to collect municipal property taxes. (Before the project, registration in the *registo matricial* was compulsory, but registration in the *registo predial* was not; now both are compulsory in areas where LMI fieldwork took place.) Although proof of municipal tax payment had been viewed as informal or de-facto proof of possession and thus may have conveyed a relatively high degree of perceived tenure security, it does not legally guarantee land rights in the absence of a public deed or final registration in the *registo predial*.[3]

[3] The project could affect households in *aforamento* status, defined as those who hold a long-term land lease with the local municipality subject to annual lease payments (known as the *foro*). The project sought to register the secondary land rights conveyed to *aforamento* holders, and promoted a process under which rights holders could make a final lump-sum payment to the municipality and be registered as the formal legal owners of the land (a process known as "remission of the *foro*"). Formal rights registration might increase the tenure security of *aformento* rights holders (and hence increase their interest in land-related investments) and enable them to access formal loans using their land as collateral. However, in-country discussions suggested that significant exogenous barriers to obtaining access to formal credit (for example, bank requirements for employment and income, and the cost and effort for the bank to acquire the full property right from the municipality in the case of default) are likely to remain. Therefore, we do not focus on *aforamento* households for the evaluation.

Figure II.1. LMI project logic (as of February 2018)



Assumptions:

1. It is now mandatory to be registered in the *registo predial* leading to more parcels in the formal system. Previously, buyers would have stopped the registration process when they acquired a *matriz* (tax payment proof) or public deed of land transfer. However, not everyone will be able to pay the registration fees right away, and not all the intervention islands will be treated via rights and boundaries clarification by the project. Full realization of benefit depends on post-compact actions.

2. Key transactions being tracked for this project include sales (municipal, private, and public) and "greenfield" investment (ZDTIs). None of the target islands had a one-stop-shop fully operational by the end of the compact. A full one-one-stop shop means that the registration of parcels that have completed rights and boundary clarification is completed. All modules of the LMITS 2 system (i.e., the municipality module, the registry module, and the notary module) are installed, tested, and integrated. All target islands have all modules installed as of 2021. However, they are not all integrated among institutions. The assumption is all target islands will eventually have all modules integrated and staff fully trained. The expectation is that there will be some transaction savings from the digitization of records and systems in each office. Still, the largest the savings will be realized from the integration of offices/LMITS integrated module and all parcels with rights and boundaries clarified in the system. For ZDTIs, the time savings is through understanding immediately existing land rights and more informed decisions by *Patrimonio*[4] and review by tourism agencies (assumes have access to cadaster[5]).

3. Those without a public deed do not have tenure beyond perhaps a *matriz*, which shows proof of tax payment. Although many may feel secure with a *matriz*, they have no legal tenure. The deed transfers the land to the private owner. Even within the project areas, many of those who end up in *diferido* status (deferred status) is due to not having a public deed and requiring further associated paperwork before processing the document into the full title in the *registo predial*. Rural farmers are one of the critical groups expected to benefit from increased tenure security and related perceptions. The project also formalized some AUGIs (illegally occupied settlements), but not many due to other external issues preventing the areas from being formalized, such as being in flood zones. For those AUGIs receiving a title, the new title should increase tenure perceptions.

4. São Vicente's immediate surroundings are mainly rural with some urban areas, while areas in Boa Vista are both rural and urban. For ZDTIs, the project helped identify landowners inside ZDTIs so that the government could complete expropriation. The government had already committed to expropriation, but the project helped the process move forward more quickly by identifying and clarifying existing land rights. The exception was Boa Vista, where identification of land occupants was already completed before the project, so the government was already in the process of expropriation. Key transactions were sales and commercial "greenfield" investments.

[4] The Patrimonio refers to the patrimony or estate owned by the government of Cabo Verde.

[5] A cadaster refers to a registry. In the case of LMI, it refers to the land registry system.

C. Economic rate of return

MCC uses ERR models to assess whether its projects are sound investments. The ERR is a summary statistic that reflects the economic merits of an investment. Conceptually, it is the discount rate at which the benefits of an intervention are precisely equal to its costs; a higher ERR implies relatively higher benefits and lower costs. Before the compact, MCC developed an ERR model for the LMI project. (The discussion below pertains to the most recent version available to us, dated June 2014.) As part of our final evaluation report, we will review the underlying logic of the ERR model and assess its validity. We will coordinate with the MCC lead economist to develop an ex-post ERR estimate that updates critical parameters in the model and includes the benefit streams that were realized in practice.

The LMI project's ex-ante ERR model focuses on the benefits from large commercial tourism-related investments on undeveloped land ("greenfield" investments), namely new hotels and condominiums. Given the importance of tourism to economic development in Cabo Verde, these investments were expected to result in the largest and most quantifiable project benefits. The project is expected to benefit these investments by substantially reducing the time required to register the investor', including validation of parcel boundaries (mapping the parcel, confirming its availability, and so on) and registration of the land transfer itself.[6] Based on the ERR model, this reduction is expected to bring planned investments forward, resulting in benefits through accelerated value added from construction and tourism. Effectively, the ERR model assumes that the limited availability of tourist accommodations is a key constraint to increased tourism, which the reduction of investment time will help address in the long term.

The key parameter in the ERR model, therefore, is the reduction in the time required to register an investor's property rights for large green field investments. The ex-ante ERR model focuses on investments in the ZDTIs, the areas in which these investments are most likely to take place and for which baseline data were available to estimate the model. Specifically, MCC used data from a variety of sources to estimate that this process averaged approximately two years in the ZDTIs before the project (648 days for boundary validation and 72 days for registering the transfer). The current ERR model assumes that the project will reduce this time to 72 days (a 90 percent reduction), presumably because the time required to validate boundaries will be reduced to zero due to the rights and boundaries clarification under Activity 2, leaving just the transfer registration time. This assumption yields an expected ERR of 22 percent, with a standard deviation of 4 percent.

To produce an ex-post, ERR estimate, it will be important to update the model based on the actual reduction in the time required to register an investor's rights in the ZDTIs, which the evaluation seeks to estimate. However, an important challenge in estimating this reduction is the lack of baseline data. Specifically, the baseline methodology for estimating transaction time for ZDTI investments may not be replicable because many of the relevant staff have left their positions, and details related to the sampling and the instruments are no longer available. The baseline estimate might also be incomplete because it only accounted for the time for boundary

[6] Land in the ZDTIs is owned by the government and managed by the government investment agencies *Cabo Verde Investimentos* (CVI) in Sal and São Vicente and the *Sociedade de Desenvolvimento Turistico das Ilhas de Boa Vista e Maio* (SDTIBM) in Boa Vista and Maio. Property rights can be transferred to an investor in the form of a sale or a long-term concession that requires annual payments.

validation and registration, and not for other steps required before an investment could be initiated (such as approvals from the municipality and environmental ministry). In addition, the ex-ante ERR model does not consider another potentially important benefit stream, namely the reduction in transaction time for land sales more broadly, because the necessary baseline data was not collected when the model was developed. (Although these benefits might be small for each sales transaction, the aggregate effect could be large because they would apply to all such transactions across the targeted and non-targeted islands if the transaction time is affected by the digitization of land records implemented under Activity 1.)

Therefore, the final evaluation report will provide an updated baseline estimate of transaction time for ZDTI investments and other sales, as well as a post-project estimate, enabling us to estimate the pre-post change in transaction time. For large commercial investments inside the ZDTIs, we estimated the baseline as part of our interviews with those investors who made investments in the years before the project (described in more detail in Chapter IV). By triangulating information from multiple investors, we may be able to obtain a rough estimate of the pre-project time to rights registration by estimating the time required for each step in the process. (MCA-CV has identified the full set of steps; we confirmed them during data collection.) Similar interviews with investors who invested after the project will enable us to estimate the post-project time to rights registration. Although this approach may be subject to some recall error—especially for pre-project investments—it has the advantage of being based on investors' actual experiences and relying on a methodology that can be fully documented. (To minimize recall error, we will request interviewees to provide any documents that show dates on which specific steps were initiated or completed, to the extent these are available.) To obtain estimates of baseline and post-project transaction time for other sales, we will rely on data from LMITS and archival research at the *Conservatoria* (also described in more detail in Chapter IV). Finally, we will also use secondary data to provide updated estimates of other potentially relevant parameters in the ERR model, such as the number of new tourism investments (and their bed capacity), tourism value added, and the number of sale transactions.

MCC's beneficiary analysis complements the ERR model by examining the distribution of benefits among different groups of beneficiaries. The current beneficiary analysis examines the benefits by income category. It projects that the project will benefit the extremely poor and poor (defined by a daily per capita income of less than $US1.25 and $US2, respectively) by $US0.22 and $US0.48, respectively, for every dollar that MCC spends. The ex-post ERR estimates could be used to update these estimates.

III. LITERATURE REVIEW

In recent years, a variety of land regularization programs have been launched in developing countries with the goals of strengthening tenure security, increasing land productivity (for example, through investments by households or business investors), improving access to formal credit, and, ultimately, reducing poverty. To provide context for our evaluation of the LMI project in Cabo Verde, in this chapter we review the existing evidence on the effects of land regularization programs (and land titling more generally). Our review is organized by the main outcomes found in the literature, many of which are also a focus of our evaluation: (1) tenure security, (2) investments, (3) access to credit, (4) property values, and (5) socioeconomic outcomes, including gender-related outcomes. Although the context and features of the land regularization programs in many of the studies reviewed below may be quite different than those of Cabo Verde, it is still useful to situate the evaluation of the LMI project in the broader literature. After discussing the evidence base for investments in land regularization programs overall, we discuss the gaps as well as the potential contribution of our study, given the specific context and program in Cape Verde.

A. Summary of existing evidence

1. Tenure security

Improved tenure security is typically the most proximal outcome that land regularization programs seek to affect and is an important mechanism through which impacts on other outcomes (such as land-related investments) might manifest. Several reviews of the literature have concluded that these programs can have positive impacts on tenure security in some cases but emphasize that these impacts can vary substantially depending on the features of the program and the local context (Deininger and Feder 2009; Payne et al. 2009; Besley and Ghatak 2010). In particular, land users in some contexts might already have a high degree of informal or de-facto tenure security, even without formal land certificates or titles. Because land users' *perceptions* of their tenure security are likely to affect their behavior (Williamson and Kerekes 2011; van Gelder and Luciano 2015; Linkow 2016), the impact of any land regularization program is likely to depend on these pre-program perceptions and how they are affected by the program.

2. Investment

There are two main mechanisms through which land regularization programs could result in an increase in land-related investments. The first is an increase in perceived tenure security, which makes users more likely to invest because they are guaranteed to reap the benefits of these investments (a demand-side effect). The second is an increase in access to credit, by enabling landowners to use the land or property as collateral (a supply-side effect). Here, we review the findings from the literature on the overall impact of land regularization on land-related investments; in the next subsection, we assess the relative roles of these two mechanisms by focusing on findings related to impacts on credit.

Most of the existing studies on the impacts of land regularization on investments focus on investments on farmland in rural areas. A handful of these studies used quasi-experimental approaches that have some degree of causal attribution. For example, a study of a land

regularization program in Rwanda using a geographic discontinuity design showed that it led to a 10-percentage point increase in the use of soil conservation measures after 2.5 years (Ali et al. 2014). Similarly, a low-cost land certification program in Ethiopia increased soil and water conservation measures by 20 to 30 percentage points among early recipients relative to those who received their certificates more than a year later (Deininger et al. 2011). In Vietnam, Do and Iyer (2008) exploited the geographic variation in intensity of a reform giving users the power to transact on their land, and show that the area devoted to long-term (perennial) crops would increase by 8 percentage points if all users were given the power to transact.

Other studies have relied on less rigorous evidence but have also generally found a link between land titling—which may protect occupants against expropriation—and investment in rural areas. For example, Deininger and Chamorro (2004) showed that investments on parcels that became titled and registered over a 10-year period in rural Nicaragua increased by 8 or 9 percentage points relative to those that did not change their status. Jacoby et al. (2002) modeled the risk of land expropriation in China on plot-level investment. They found that higher expropriation risk significantly reduced the application of organic fertilizer that has long-lasting benefits for soil quality, indicating that tenure insecurity affects rural investments. In Ethiopia, the risk of expropriation—measured by past expropriation or its perceived risk—was inversely correlated with investments in terracing, which enhance long-term productivity (Deininger and Jin 2006). In contrast, Jacoby and Minten (2007) found little difference in investment for titled and untitled plots owned by the same households in Madagascar, suggesting that investments might not be related to titling in all rural contexts.

The evidence on the relationship between land titling and land-related investment in urban areas is much more limited, especially in Africa. The most widely cited study (Field 2005) focused on urban squatter neighborhoods in Peru and used a quasi-experimental approach that compared changes over time in areas that were and were not titled. The author found that investments in small home renovations increased by about two-thirds between one and four years after titles were issued. A study by Galiani and Schargrodsky (2010) exploited a natural experiment on a piece of land occupied by squatters in a poor suburb of Buenos Aires, where only some tenants received titles under a titling program because it depended on the cooperation of the previous landowners. The authors showed that receipt of a land title was associated with a 12 percent increase in constructed surface area and a 39 percent increase in an index of housing quality in the long term, more than a decade after the first squatters were given titles.

3. Credit

As mentioned above, increased access to credit through collateralization of property is one mechanism though which land titling could lead to increased land-related investment. More generally, some have argued that land titling is the key to unlocking access to credit for a variety of productive purposes by poor households in developing countries (de Soto 2000). However, the evidence in support of this hypothesis is still quite limited. A variety of case studies and survey evidence suggest that other factors, especially the capacity of borrowers to repay loans, may be critical constraints for participation in formal credit markets even with a land title (Payne et al. 2009). Those facing poverty may also be averse to the risk of putting up their property as collateral, even when they are able to do so (Boucher et al. 2008).

Several of the studies discussed in the previous subsection that showed impacts of land titling on land-related investments also examined whether an increase in credit was a contributing mechanism, and generally found that this was not the case (Field 2005; Galiani and Schargrodsky 2010; Do and Iyer 2008). Field and Torero (2006) found that the titling program in urban Peru studied by Field (2005) did increase loan approval rates, but only for in-kind loans from a public bank for construction materials. There was no change in approval rates for other credit purposes or for loans from private banks, and more than one-third of households remained completely rationed out of the formal credit market. Therefore, the overall impacts on access to credit were very limited and cannot explain the impacts on investment. A recent quasi-experimental study in rural Ethiopia found a modest increase of about 10 percent in access to credit between three and seven years after a new land certification program, but the mechanism for this increase was unclear, because formal lenders did not accept the land certificates as collateral (The Cloudburst Group 2016).

Some studies have shown larger impacts of land titling on credit, but typically only for wealthier households. Early work on land titling in rural Thailand showed a substantial increase in access to credit, but mainly for farmers with high land values or capital (Feder et al. 1988). Carter and Olinto (2003) used panel data from farmers in Paraguay to show that those who received land titles were more likely to make land-attached investments. However, small farmers simply shifted the composition of their investments from moveable to fixed investments and had no net increase in investments, likely because of credit constraints. In contrast, large farmers—who were better positioned to access the credit market—did have a net increase in investment.

4. Property values

Although there is very little rigorous evidence of the impact of land titling on property values, descriptive evidence from case studies suggests that an increase of the order of 25 percent is common (Payne et al. 2009). The available quantitative evidence uses simple regression models to examine the relationship between self-reported property values and a land title, while controlling for property characteristics and measures of informal tenure security, such as length of tenure. However, these regressions can be biased if receipt of or demand for a title is related to unobserved characteristics or if self-reported values are systematically biased in some way, and do not have a causal interpretation.

Using a regression-based approach, land titling has been shown to be correlated with increased land or property prices in several contexts. In rural areas, studies have found 30 percent higher land values in rural Nicaragua (Deininger and Chamorro 2004), 30 percent higher land values in rural China (Deininger and Jin 2009), and at least 25 percent higher land values (more than 200 percent in some provinces) in rural Thailand (Chalamwong and Feder 1988). In urban Ecuador, Lanjouw and Levy (2002) used a different approach that asked untitled users about their current expected property value and the expected value if they had a title. The authors found that users expected a 23 percent increase in value, on average; the effect was much higher in areas where initial tenure security was very low.

5. Socioeconomic and gender-related outcomes

Several studies have focused on impacts of land regularization on socioeconomic outcomes. Galiani and Schargrodsky's study in urban Argentina found evidence of improved human capital

investments due to titling, along with the physical capital investments described above. They found long-term decreases in teen pregnancy and improved child nutrition (Galiani and Schargrodsky 2004), as well as substantial increases in children's educational attainment (Galiani and Schargrodsky 2010). Other studies have found impacts of titling on labor market participation, which can have both economic and social consequences for affected households. For example, in urban Peru, Field (2007) found an increase in labor supply three years after titling, a higher likelihood of working outside the home, and substitution of adult for child labor—likely because occupants were able to spend less time maintaining their tenure. Similarly, in rural Vietnam, Do and Iyer (2008) found that nonfarm activities would expand by 11 to 12 weeks on average if all land was certified.

Several studies have focused specifically on impacts of land regularization on women, who have traditionally been discriminated against in the property rights regimes in many developing countries (Joireman 2008). This literature suggests that having women included on land titles can have direct impacts on their tenure security, as well as more indirect impacts on female agency and decision making within the household. The land regularization program in Rwanda that was discussed above (Ali et al. 2014) had a specific focus on including married women on land titles. The authors found improved land access for married women and better recording of inheritance rights without gender bias. Field (2003) found that the inclusion of female names on land titles in urban Peru led to increased participation in household decision making and reduction in fertility after one to two years. In China, Wang (2014) examined a program that awarded individual-level property rights to state employees. Awarding rights to men increased female time spent on chores and spending items favored by men, with the opposite effect when rights were awarded to women. Finally, the recent study of a new land certification program in rural Ethiopia that was discussed above (The Cloudburst Group 2016) found an increase in the likelihood of a wife possessing land in her name and a substantial increase in the likelihood of a wife deciding which crops to grow on land in her possession.

B. Gaps in the literature and contribution of the LMI evaluation

Overall, the existing literature on land regularization in developing countries has several important gaps. First, there are still relatively few rigorous impact evaluations of these programs. Although the number of quasi-experimental studies is growing, it is still small overall, and experimental evidence—the "gold standard" of impact evaluation—is almost nonexistent. Second, there have been few studies of the effects of these programs in urban Africa. The African studies have largely taken place in rural settings, and the few studies in urban areas are limited to Latin America. Third, the existing studies focus on the effects of land regularization programs on households; to the best of our knowledge, there are no studies that examine effects on large commercial investors. This gap could be, for example, because the areas on which many land regularization programs have focused (informal settlements and rural areas) are not attractive to these investors or because of other important constraints to investments in the countries receiving these programs. Fourth, few of the existing studies have integrated quantitative findings with a detailed qualitative analysis to explain program effects or a lack thereof.

Our evaluation of the LMI project in Cabo Verde will contribute to addressing some of these gaps. Although we did not recommend a rigorous impact evaluation of the project, given the lack

of a credible comparison group and potentially small impacts at the household level (as described in greater detail in the appendix), our performance evaluation will provide useful evidence of the changes associated with a land regularization program in Africa that covers urban areas, as well as the changes in large commercial investments (in particular, tourism-related investments). In addition, our evaluation will combine quantitative evidence on the changes associated with the project with a comprehensive qualitative analysis to understand how and why these changes are observed. The gender-related components of the qualitative study will provide detailed evidence on gender dynamics around land rights and land regularization that will contribute to the literature on these issues. Our evaluation will not only add to the overall evidence base but will be particularly useful in guiding policymakers in the GoCV, who may expand the project to additional islands (or additional areas of the targeted islands) and will be responsible for maintaining the new system after the end of the compact.

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IV. EVALUATION DESIGN

In this chapter, we describe our design for the evaluation of the LMI project. We begin by listing the research questions that the evaluation seeks to address and by providing a brief overview of the proposed evaluation design, which includes several components. We then describe in further detail each of these components, the data they will rely on, and how we will draw on these data to answer the research questions. We also describe our quality assurance plan for project monitoring data. Finally, we discuss some of the limitations and challenges of the evaluation.

A. Research questions

The evaluation of the LMI project seeks to answer the following research questions (these largely reflect the original research questions proposed by MCC, but we have added questions in response to stakeholder feedback on the draft evaluation design report):

1. Do more secure land rights result in increased domestic and/or foreign investment in land and property, and/or increased productive use of land?
2. What is the project's effect on property values?
3. What is the project's effect on land tenure security and land-related disputes?
4. Does the project result in reduced time for key property transactions?[7]
5. Does the project lead to an increase in key property transactions using the formal land system?
6. Is the LMITS financially sustainable?
7. Are institutions targeted by the project still using the new land systems and procedures introduced by the project in the post-project period? To what extent has INGT worked to clarify rights and boundaries in additional areas and islands in the post-compact period?
8. How do the project's benefits and/or costs accrue differently to men versus women and to the poor and vulnerable versus non-poor?
    a. Were the legitimate rights of women and men properly recorded? Were the legitimate rights of the poor and vulnerable properly recorded?
    b. Were there systematic differences in whose legitimate rights were recorded and whose were not, by gender and relationship status? Were there systematic differences by poverty and vulnerability? What is the reason for these differences?
    c. How does the effect of land titling on tenure security, land disputes, and household decision making (including land-related and other types of decisions) vary by gender, legal status, and relationship status?

[7] MCC has identified two key property transactions for the evaluation: (1) sales of private property, and (2) acquisition of property for large commercial investments on undeveloped land (green field investments). As mentioned earlier, the steps and transaction time for the latter could vary based on whether the investment is inside or outside a ZDTI and whether it is a sale or a concession.

9. Do more efficient procedures and more reliable rights and boundary information lead to increased investment and growth in the tourism industry and related economic activity?

To answer these questions, we will conduct a mixed-methods performance evaluation that includes three components.[8] The first component is a **pre-post analysis**, which will use secondary data to examine changes in key outcomes before the MCC-funded project was implemented (2012–2014/2015) and after (2018–2020).[9] The analysis will focus mainly on the four targeted islands, but we also plan to estimate trends in transaction time and volume on three non-targeted islands, which could be affected by Activity 1 alone. The second component is a **qualitative study**, that will draw on key informant interviews with stakeholders, including beneficiary households and businesses. The interviews will cover all four targeted islands and, for some stakeholders, three non-targeted islands. The household and business interviews will focus primarily on Sal and Boa Vista. The third and final component is a largely qualitative **multisite case study** of large commercial investments inside ZDTIs on the four targeted islands, which will explore the processes, challenges, and results related to these investments before and after the project. Table IV.1 shows how the planned evaluation components link to the research questions. Below, we discuss each component in further detail, including the data sources, analysis approach, and timing.

Table IV.1. Research questions and proposed evaluation design components

Research question	Component 1: Pre-post analysis	Component 2: Qualitative study	Component 3: Multisite case study
1. Do more secure land rights result in increased domestic and/or foreign investment (especially tourism related) in land and property, and/or increased productive use of land?	X	X	X
2. What is the project's effect on property values?	X	X	X
3. What is the project's effect on land tenure security and land-related disputes?	X	X	X
4. Does the project result in reduced time for key property transactions?	X	X	X
5. Does the project lead to an increase in key property transactions using the formal land system?	X	X	
6. Is the LMITS financially sustainable?		X	
7. Are institutions targeted by the project still using the new land systems and procedures introduced by the project in the post-project period? To what extent has INGT worked to clarify rights and boundaries in additional areas and islands in the post-compact period?		X	
8. How do the project's benefits and/or costs accrue differently to men versus women and to the poor and vulnerable versus non-poor?	X	X	

[8] As we describe in the appendix, we considered conducting an impact evaluation but determined that it would not be feasible in this setting.

[9] 2012–2014 for the targeted island of Sal and 2012–2015 for the other three targeted islands: Boa Vista, Maio, and São Vicente.

Research question	Component 1: Pre-post analysis	Component 2: Qualitative study	Component 3: Multisite case study
9. Do more efficient procedures and more reliable rights and boundary information lead to increased investment and growth in the tourism industry and related economic activity?	X		X

B. Pre-post analysis

In this section, we describe the data sources and analysis approach for the first component of the performance evaluation—a pre-post analysis that will examine changes in key outcomes before and after the compact interventions. As mentioned earlier, this component will draw on secondary data sources. These sources include surveys conducted by other entities (primarily by the national statistics agency, INE), LMITS data, and administrative data (for example, from municipalities, notaries, and the *Conservatorias*). Most of the secondary data will be drawn from the four targeted islands; however, we plan to collect data related to transaction time and volume on three non-targeted islands because these outcomes might be affected by Activity 1 alone. We will collect these data from Santiago, Santo Antão, and Fogo, the three largest non-targeted islands by population size.

1. Key outcomes and data sources

The outcomes we will analyze using secondary data are linked to the research questions and draw on discussions with MCC, MCA-CV, and other stakeholders during our April 2016 mission to Cabo Verde (Table IV.2). Many of these outcomes are project monitoring indicators that MCA-CV tracked for all targeted islands, which we will continue to track post-compact to allow more time for them to evolve. Information about these outcomes is typically available at an aggregated level—at the island level or for the country as a whole—on an annual basis. To the extent possible, we plan to capture this information from 2012–2020.

The key outcomes we plan to examine in this way include the following:

- **Productive use of municipal and state-owned land** will focus on the number of parcels transferred or sold to private individuals or entities by the municipalities[10] and the *Patrimonio* (the agency responsible for state-owned land). For municipal land, the number of building permits, as well as the value of construction approved (if available), are additional measures reflecting the productive use of land. We will also use data from municipalities to assess the extent to which revenues from municipal property taxes have increased (which we might expect as more properties are formally registered), and the contribution to overall increases in municipal tax revenues.
- **Large commercial investments** will involve documenting the number, type, and size of large commercial tourism-related investments (hotels and condominiums) inside the ZDTIs each year, as well as the percentage of the ZDTI surface area developed. Given the scale and

[10] This number includes new *aforamento* agreements and the awarding of full rights to *aforamento* rights holders.

complexity of these large investments, we expect that there will be relatively few of them, and that this information will be available from the investment agencies.

- **Aggregate investment** will measure foreign investment (total and tourism related) and domestic investment using data from the central bank and INE, respectively. Although trends in these outcomes could reflect multiple influences besides the project, they are still informative about whether the envisaged aggregate changes in investment are occurring.
- **Property values** that we will attempt to measure using secondary data include values of land provided for large commercial investments inside the ZDTIs on each island and private property in urban areas affected by the project. For large commercial investments inside the ZDTIs, if the land is sold directly to investors, we expect to be able to gather the sales price (per square meter) from the ZDTI investment agencies. If land instead is provided to investors on a concession basis, we may be able to estimate the equivalent property value using the stream of concession payments from actual ZDTI investments and an appropriate discount rate. We expect that this information will be available from the contracts held by the ZDTI investment agencies if they are willing to share it with the team.

  For private property values in urban areas directly affected by the project, we will explore the possibility of obtaining historical information on sales and rentals from a sample of real estate agents or newspaper advertisements. If these data are available, they would complement qualitative data about changes in property values gathered from interviews with real estate agents (discussed in Section C). Under this approach, our local data collection partner would gather data on the sales price or rent for each transacted property, as well as features of the property (such as the type of property, neighborhood, property size, and so on). This approach would enable us to compare how the values of similar properties change over time.[11] However, collecting and analyzing these data might be costly, whereas their contribution to the evaluation might be limited because the evolving discussions around the project logic suggest that the project might not substantially affect property values in urban areas. Therefore, we will assess the feasibility, cost, and contribution of this approach relative to relying only on the lower-cost qualitative data from real estate agents.
- **Tenure security.** We will assess the project's effects on legal tenure status at an aggregate level. Specifically, we will use administrative records to document the total number of properties that were issued a public deed or registered in the *registo predial* through the project and examine changes before and after the MCC Compact interventions. Although these measures reflect legal rather than perceived tenure security, we would expect them to be correlated with perceived security and are not aware of any secondary data source that would enable us to measure perceived security directly. Instead, we will complement these data with changes in perceived tenure security (and investments) gathered through key informant interviews.

[11] This analysis will have some important caveats. First, many property transactions are conducted informally, so the sample we obtain might not be representative of all properties in these areas. Second, if the project increases the number of formal transactions, the characteristics of properties for which we have information might change over time (even after accounting for observable characteristics), making it difficult to interpret the estimated changes. Third, the number of transactions for a given property type might be small in a given year, making it difficult to assess changes even for observationally similar properties.

- **Land-related disputes.** We will document land-related conflicts using secondary data from contractor reports. This analysis will focus on conflicts identified and resolved during the project rather than changes relative to the pre-project period, due to a lack of pre-project data and given our understanding that land conflicts are uncommon. To complement these secondary administrative data, we will use key informant interviews to explore the effects of the project on conflicts as a theme among different stakeholder groups.
- **Transaction time** for sales will involve attempting to measure the time required for the sales transactions starting with a buyer's request for deed preparation at the municipality (for municipal land sales) and at the notary (for private land sales). However, this will require us to obtain information on the date on which each step was initiated and concluded.

  For municipal land sales, we will attempt to collect 30 transactions from the municipality and 15 transactions from the registry per year in Boa Vista, Maio, and São Vicente and 40 transactions from the municipality and 20 transactions from the registry per year in Sal (which has a larger volume of transactions).For private land sales, we will attempt to collect 30 transactions from the notary and 15 transactions from the registry per year in Boa Vista, Maio, and São Vicente and 40 transactions from the notary and 20 transactions from the registry per year in Sal.

  We will work with NOSi and technical teams at each institution to extract these data from each module of the LMITS 2 system, where available. For years where these data are not in the system, our data collection team will visit each institution on all four islands and collect the data from paper records in the archives. We will use the SurveyCTO program to collect archival data.

  This approach would draw on hard copies of the documents with the required dates (pre-project sales) or electronic information in their computerized system (post-project sales) to estimate the transaction time for some steps. However, this approach is likely to be very time-intensive and is subject to the availability of documentation at each institution on each island. Finally, we can use data from the World Bank's Doing Business project, which includes annual data on transaction time and cost for private commercial sales on Praia, the largest city on the island of Santiago (the most populous non-targeted island).[12]

  For transaction time related to large commercial investments in ZDTIs, we will rely on interviews with investors who made investments before or after the project (as discussed in Section D).
- **The number of transactions** will be obtained from LMITS or each institution on targeted and non-targeted islands (sales) and the ZDTI investment agencies (commercial investments inside the ZDTIs).
- **Registration of male and female partners on land titles** will involve categorizing households in LMITS by their relationship status and determining which of the two partners (if any) was formally registered on the title after the project. (This analysis compares the

[12] The World Bank data also include an indicator related to the quality of the national land administration system based on five dimensions: reliability of infrastructure, transparency of information, geographic coverage, land dispute resolution, and equal access to property rights. We can also explore trends in this indicator as part of the evaluation.

situation before and after the project.) Our ability to measure this outcome will depend on the extent to which the required data are made available in LMITS in a format that is easily extractable for analysis.

- **Tourism-related outcomes** will focus on aggregate measures of tourist accommodation and tourism-related economic activity, using data from INE surveys of hotels, businesses, and visitors to Cabo Verde.

Table IV.2. Outcomes from secondary data

Research question	Outcomes	Source
1. Do more secure land rights result in increased domestic and/or foreign investment (especially tourism related) in land and property, and/or increased productive use of land?	*Productive use of municipal land* • Number of parcels sold or transferred to private individuals or entities • Number of building permits issued • Municipal property tax revenues and total municipal tax revenues	• Municipalities • Municipalities • Municipalities
	Productive use of non-ZDTI state-owned land • Number of parcels sold or transferred to private individuals or entities	• *Patrimonio* (agency responsible for state-owned land)
	Large commercial investments • Number, type, and size of large commercial investments inside the ZDTIs • Percentage of ZDTI land developed	• Investment agencies (CVI and SDTIBM) • Investment agencies
	Aggregate investment • Foreign direct investment in tourism and non-tourism sectors • Domestic investment (total)	• Central Bank: balance of payments data • INE: national accounts
2. What is the project's effect on property values?	• Land values for large commercial investments in ZDTIs • Property values in urban areas	• Investment agencies (CVI and SDTIBM) • Real estate agents and newspaper advertisements
3. What is the project's effect on land tenure security and land-related disputes?	*Tenure security* • Whether property is issued a title or formally registered in the *registo predial*	• LMITS
	Land-related disputes • Land disputes identified and addressed	• Contractor and EAT committee reports
4. Does the project result in reduced time for key property transactions?	*Transaction time* • Sales: full set of transaction steps leading to registration in *registo predial* • Commercial green field investments in ZDTIs: time to register investors' property rights	• LMITS, *Conservatoria*, World Bank's Doing Business project (commercial sales in Praia) • Interviews with large commercial investors (see Section D)

Research question	Outcomes	Source
5. Does the project lead to an increase in key property transactions using the formal land system?	*Number of transactions* • Number of sales • Number of commercial green field investments in ZDTIs	 • LMITS and/or *Conservatoria* • Investment agencies
8. How do the project's benefits and/or costs accrue differently to men versus women and to the poor and vulnerable versus non-poor?	• Registration of male and female partners on land titles, by relationship status	• LMITS; implementing contractor reports and other available administrative data
9. Do more efficient procedures and more reliable rights and boundary information lead to increased investment and growth in the tourism industry and related economic activity?	*Tourism-related outcomes:* • Hotel bed capacity • Number of hotel establishments • Annual business turnover for tourism and construction sectors • Tourism value added • Number of formal ancillary tourism businesses • Persons employed in tourism and construction sectors	 • INE: survey of accommodation establishments • INE: survey of accommodation establishments • INE: annual business survey/census • INE: national accounts, drawing on visitor exit survey • INE: annual business survey/census • INE: annual business survey/census

2. Analysis approach

The analysis of these secondary data will be descriptive in nature and focus on a graphical illustration of changes before and after compact interventions. Wherever possible, we will conduct this analysis separately by targeted island because the changes associated with the project might differ across islands due to differences in context, geographic scope, and the timing of implementation. It will be necessary to exercise caution in interpreting the findings from this analysis and not unduly attribute any observed changes to the impacts of the project. Specifically, factors unrelated to the project could be driving some of the observed changes in trends (for example, an unrelated change in tourism because of the COVID-19 pandemic); without a valid counterfactual, these changes cannot be fully attributed to the project. Nevertheless, this approach will still provide useful evidence about contributions MCC's interventions may have made over time, and the qualitative study discussed in Section C will help us understand the possible influence of the project.

A more rigorous approach to quantitatively estimating the change associated with the project (for example, an interrupted time series approach) is not feasible because the changes are likely to be gradual. Specifically, there is unlikely to be a sharp change in a specific year, given the variation in timing across islands, the relatively long duration of the intervention, the gradual resolution of *diferido* status,[13] and time required for some of the economic responses (for example, new tourism-related investments).

[13] Parcels in *diferido* status are those for which the steps required to finalize the parcels' ownership status have not been completed.

3. Timing

To facilitate the pre-post analysis, we will attempt to gather data on the relevant outcomes for several years leading up to the intervention and will gather all available post-project data through 2020. This approach will provide three or four years of post-project data (depending on the island), which should be adequate to assess changes for most outcomes.[14] The outcomes related to tourism (research question 9) might be slower to respond because some of the large new tourism investments expected to be initiated by the project may not be completed by 2020 (end of data collection). These investments are also likely to be affected by the COVID-19 pandemic, which started in late 2019. However, extending the evaluation by several more years to further capture changes in trends for these outcomes—changes that could not be fully attributed to the project—would not be justified. Nevertheless, we will measure the number, volume, and characteristics of the new investments initiated through 2020, which would be a precursor to any increases in tourism.

C. Qualitative study

In this section, we describe the data sources and analytic approach for the second component of the performance evaluation of the LMI project—a qualitative study. This study will draw on two rounds of interviews with key stakeholders, including beneficiary households and businesses. The first round of interviews (in the final two quarters of 2017) captured information about implementation and early results and helped us develop the data collection instruments for the second round. The second round of data collection (May 2021–March 2022) will include interviews with members of the relevant government entities, households, businesses, and real estate agents. These interviews will capture longer-term results.

The qualitative study will complement the other components of the evaluation in several ways. First, it will complement the pre-post analysis described in Section B by enabling us to explore *how*, *why*, *where*, and for *whom* the estimated changes in outcomes did or did not occur (related to research questions 1–5). Second, for outcomes not included in the pre-post analysis because of a lack of data—in particular, tenure security and household-level investments—the qualitative study will be the primary source of information about changes in these outcomes. Third, it will enable us to understand issues related to formal registration of legitimate land rights by gender and relationship status and will also help us explore gender dynamics around land rights (research question 8). Finally, it will enable us to answer the research questions related to the sustainability of LMITS, which the other components of the evaluation will not be able to illuminate (research questions 6 and 7). The qualitative study will therefore help us to answer more fully many of the research questions listed in Table IV.1.

1. Data sources

As mentioned earlier, we plan to collect two rounds of interviews with key stakeholders. The interviews will cover key stakeholders at the national and island levels (including all four targeted islands and, for some stakeholders, three non-targeted islands). By contrast, we plan to conduct the household interviews on two targeted islands—Sal and Boa Vista. These are the

[14] Ideally, we would also like at least four or five years of pre-project data to determine pre-project trends; however, the number of years of available pre-project data will likely vary depending on the outcome measure.

targeted islands on which implementation extended beyond the ZDTIs and potentially affected individual households and businesses, and on which we expect to be able to identify all the key household typologies of interest (we describe these typologies below). Collecting data from these two islands will therefore enable us to address the key research questions within the available resources for the evaluation.

Table IV.3 summarizes the data sources for the qualitative study and provides illustrative areas of focus for each source. The sources include key informant interviews with the following stakeholders (a total of 15 structured or semi-structured interviews in the first round and 110 in the second round[15]):

- **Municipalities (4).** We will conduct interviews with key staff from municipalities on all four targeted islands. These interviews will enable us to understand how the project affected the allocation of municipal land, municipal planning, and collection of property taxes, as well as municipalities' use of LMITS.
- **The *Conservatoria* (7).** We will conduct interviews with key staff from the *Conservatoria* on all four targeted islands, as well as three non-targeted islands (those with the largest populations—Santiago, Santo Antão, and Fogo). The interviews on targeted islands will be informative regarding the implementation of the project, how it has affected the process of registering land in the *registo predial*, and how LMITS is working in practice. The interviews on non-targeted islands will enable us to focus specifically on the effects of Activity 1 on land registration. On both targeted and non-targeted islands, these interviews will also be useful in triangulating and understanding the estimated trends in transaction time (described in Section B of this chapter).
- **Notaries (up to 12).** We will interview up to three notaries[16] on each of the four targeted island to explore the process, time, and cost of obtaining a public deed, and how this has changed over time, including the use of LMITS. These interviews will enable us to better understand this important step in the property transaction process.
- **The *Patrimonio* and Ministry of Rural Development (2).** We will interview staff at the *Patrimonio* and Ministry of Rural Development to understand how the project affected the allocation and management of state-owned land managed by these agencies, as well as their use of LMITS.
- **NOSi (2).** We conducted interviews with NOSi staff responsible for the development, implementation, and ongoing management of LMITS. These interviews focused on the challenges and successes of implementation, and the extent to which the system continues to receive the financial, technical, and management support required to meet the needs of all stakeholders of the "one-stop shop" approach to property transactions. The interviews also

[15] The number of interviews for the second round increased because the team converted household focus groups to interviews with the heads of household. We determined that we would collect more accurate and honest answers about land titling through individual interviews where household members are more likely to share information than in focus groups.

[16] Three types of notaries include: public notary under DGRNI, private notary of Municipalities, private notary of the Patrimonio.

explored the extent to which NOSi views LMITS as operationally and financially sustainable, and the main risks to sustainability.

- **Implementing contractors (4).** We interviewed key staff from each of the implementing contractors (DAI on Sal, the Geoglobal/Servulo consortium on Boa Vista, Municipia on São Vicente, and INGT on Maio) to understand how the activities were rolled out to each island (including differences across islands) and the opportunities and challenges each entity faced during the implementation process. We interviewed all of them in the first round, toward the end of the implementation period on each island; we also interviewed INGT again in the second round to explore post-compact implementation in additional areas and islands. Because implementation on Sal was completed and some of the relevant staff left Cabo Verde, we interviewed DAI staff by Skype or phone. To better understand gender-related issues, we also interviewed the gender specialist on each implementing contractor team (although the team leads are also knowledgeable on gender issues).
- **MCA-CV and MCC (5).** We interviewed several MCA-CV staff—including those responsible for overseeing implementation, monitoring and evaluation, and gender issues—about the implementation of the project, their perceptions of successes and challenges, and their expectations of the effects of the project on key outcomes. We conducted these interviews only once, close to the end of the compact in the third quarter of 2017. We also conducted similar interviews with key staff at the MCC resident country mission in Cabo Verde and the MCC U.S.-based land team.
- **Real estate agents (6).** We will conduct interviews with up to six real estate agents on Sal and Boa Vista in the second round. We will focus on Sal and Boa Vista because these are the islands where implementation is expected to substantially reach urban residential areas—the areas in which the land market is likely to be most active. These interviews will enable us to understand the importance of formal registration for property values; changes in property values, the land market, and the formality of land transactions over time; and the role of the LMI project and other factors in driving these changes.
- **Individuals in married or registered de facto (RUDF) relationships (24).** We plan to conduct a total of 24 interviews with individuals in married or RUDF relationships on Sal and Boa Vista. We will ensure a mix of gender so that we collect a diversity of perspectives within each type of relationship category.[17] We will purposefully select the participants for the interviews using LMITS data or an on-the-ground convenience sampling approach to ensure a diverse set of participants. Each participant will represent a separate household so that we can diversify the sample as much as possible. These interviews will help us understand the results of the project for spouses in formally recognized relationships.
- **Individuals in recognizable but unregistered de facto (UUDF) relationships (24).** We plan to conduct a total of 24 interviews with individuals in UUDF relationships on Sal and Boa Vista. Like the married and RUDF interviews, we will organize interviews by gender

[17] To minimize data collection costs, we plan to include a mix of married RUDF household members in the interview sample (by gender).

and purposefully select the participants using LMITS data or a convenience sampling approach.

- **Individuals who received a public deed through the LMI project (24).** We plan to conduct a total of 24 interviews with a group of purposefully selected individuals who received a public deed through the LMI project (6 per island on the four targeted islands). We will select participants using LMITS and ensure a mix of participants based on gender. The interviews will seek to understand how obtaining a public deed improved people's tenure security and reduced the potential for land conflicts. We will also explore whether having the deed contributed to any investments in the individual's property.
- **Local business owners (12).** We plan to conduct 12 interviews with owners of small and medium local businesses in urban areas of Sal and Boa Vista who recently made or are interested in making land-related investments for their businesses (6 interviews per island). We expect to identify these businesses through local chambers of commerce and similar organizations. These interviews enable us to explore the barriers to land-related investments for urban businesses, and how business investments have been affected by the project.
- **Small farmers in rural areas (8).** In Cabo Verde, small rural farmers may occupy vacant state-owned land informally. Although in some cases the state has granted land to farmers under various initiatives, the available documentation is generally insufficient to formally register their land rights and ensure their tenure security. The lack of such security means that these farmers might not make large investments in the land beyond what they need to grow seasonal crops. The literature supports the idea that providing small farmers with formal registration titles can lead to increased investments in the land (as discussed in Chapter III). We will conduct interviews with eight farmers on Boa Vista because there are few farmers on Sal, the other island covered by our household interview process. These interviews will enable us to explore the effects of LMI on small farmers, particularly the relationship between secure property rights and investments in land. To identify participants, we will consult with the *Patrimonio*, Ministry of Rural Development, and other local governing bodies to obtain a list of local small farmers. We will use a convenience sample of farmers in selected rural areas with farming activity when information is not available through formal means.

Finally, we will also conduct a **document review**. This review will focus primarily on reports from the implementers of the MCC LMI project activities and will provide information on what aspects of implementation went smoothly, the main challenges to implementation and the changes made as a result, and key lessons. The document review could also identify topics of possible importance to explore in more detail through the qualitative data collection. It will also provide descriptive quantitative and qualitative information on key outcomes to complement the pre-post analysis and information obtained from qualitative data. For example, reports from the implementing contractors will provide information on land-related disputes and how these disputes were resolved. Examples of documents to be included in the review include quarterly and annual reports from the implementing partners and MCA-CV.

Table IV.3. Sources for qualitative data collection

Data source	Type of data	Number	Islands	Timing	Illustrative areas of focus
Municipalities	Interviews	4	All 4 targeted islands	R2	• Effect of the project on accuracy of the municipal cadaster, and implications for land allocation and municipal planning • The municipal land valuation system for property taxes, and how the project affected property tax revenues • The extent to which property transactions are registered in the formal system and reflected in the *matriz*, and how this has changed over time • Implications of increases in tax revenues from property taxes or property transaction taxes on municipality finances and spending • Process for approval of large commercial investment projects, and effects of the project (if any) • Extent to which LMITS is being used, and why • Challenges to using LMITS • Remaining challenges to the management of municipal land
Conservatoria	Interviews	7	All 4 targeted islands and 3 non-targeted islands	R2	• Perceptions of the land registration process and how it has changed • Extent to which LMITS is being used, and why • Challenges to using LMITS • Remaining bottlenecks to registration of land rights and property transactions • Understanding of *Conservatoria* around gender and relationship issues in land titling, and engagement in addressing these issues
Notaries	Interviews	up to 12, by type of notary	All 4 targeted islands	R2	• Process, time, and cost of obtaining a public deed, and how this has changed over time • Extent to which LMITS is being used, and why • Challenges to using LMITS
Patrimonio and Ministry of Rural Development	Interviews	2	National level	R1	• Effect of the project on allocation of state-owned land • Effect of the project on registration of land rights for farmers occupying state-owned land in rural areas, and remaining challenges to registration • Extent to which LMITS is being used, and why • Challenges to using LMITS • Remaining challenges to the mapping, allocation, and management of state-owned land
NOSi	Interviews	1 per round	National level	R1, R2	• Successes and challenges of implementation • Extent to which stakeholders are using LMITS, and why • Ongoing challenges to stakeholders' use of LMITS

Data source	Type of data	Number	Islands	Timing	Illustrative areas of focus
					• Extent of investments in LMITS to ensure maintenance and functionality, and additional investments needed • LMITS operational and financial sustainability, and perceived risks to sustainability
Implementing contractors (including gender specialists)	Interviews	4 in R1, 1 in R2	All targeted islands	R1, R2 (R2 for INGT only)	• Lessons from implementation • Extent to which expected outputs were achieved, and why • Efforts made to register the land rights of the poor and vulnerable, and perceived success of those efforts • Efforts made to register the land rights of partners in various types of relationships, and perceived success of those efforts • Perceived risks to achieving shorter- and longer-term outcomes • Government plans/timeline to continue scale-up to the rest of Cabo Verde in the post-compact period (INGT) • Successes and challenges of post-compact implementation (INGT)
MCA-CV and MCC	Interviews	5	National level	R1	• Lessons from implementation • Extent to which expected outputs were achieved, and why • Perceptions of the likely effects of the project (including pre-project tenure security, poverty/vulnerability status, and gender/relationship status) • Perceived risks to achieving shorter- and longer-term outcomes
Real estate agents	Interviews	6 (3 per island)	Sal and Boa Vista	R2	• Main factors affecting property values, especially the role of formal registration • Current and expected trends in property values, and reasons for these trends • Current and expected changes in the land market over time, and reasons for these changes • The extent to which property transactions are conducted through the formal system versus informally, how this has changed over time, and why • Access to and relative importance of credit for property purchases, and whether this has changed over time • The perceived role of the LMI project in driving changes in property values, the land market, and the formality of transactions
Individuals in married or RUDF relationships	Interviews	24	Sal and Boa Vista	R2	• Extent to which legitimate rights are recorded on land titles, how they are registered (as a joint owner, co-owner, or spouse), how registration has been affected by the project, and remaining barriers • Perceived recognition of land rights (inside and outside the household)

Data source	Type of data	Number	Islands	Timing	Illustrative areas of focus
					• Perceived risk of loss of rights due to claims by others (inside or outside household) • Perceived risk of loss of rights if relationship status changes (separation due to abandonment, taking another family, divorce, or death of partner) • Occurrence of actual disputes and perceived risk of disputes (inside and outside the household/business) • Knowledge of how and where to obtain redress for disputes, financial capacity to seek redress, and confidence in fairness of dispute redress system • Confidence in legal enforceability of land rights • Effects of titling on land-related decisions (for example, investments in the property, how the property is used, whether to sell or rent the property, who can live on the property, and so on) • Effects of titling on other decisions, including intra-household resource allocation
Individuals in UUDF relationships	Interviews	24	Sal and Boa Vista	R2	• Similar to the married/RUDF interviews
Local business owners	Interviews	12	Sal and Boa Vista	R2	• Desire for and experiences with land-related investments • Barriers to land-related investments, and the extent to which these barriers have been affected by the project • Further improvements to the land system that could facilitate additional investments
Individuals who received a public deed through the LMI project	Interviews	24	All targeted islands	R2	• Awareness of land rights and formal registration, experiences with registration under the LMI project, and remaining barriers to formal registration • Effects of the project on awarding full rights to *aforamento* holders • Perceived tenure security, how and to what extent tenure security has been affected by the project, and implications for household behavior • Desire for land-related investments, barriers to these investments, and how and to what extent these barriers have been affected by the project • The extent of land-related disputes in the community, how these disputes are resolved, and how and to what extent these disputes have been affected by the project
Small farmers in rural areas	Interviews	8	Boa Vista	R2	• Awareness of land rights and formal registration, experiences with registration under the LMI project, and remaining barriers to formal registration

Data source	Type of data	Number	Islands	Timing	Illustrative areas of focus
					• Perceived tenure security, how and to what extent tenure security has been affected by the project, and implications for household behavior • Desire for land-related investments, barriers to these investments, and how and to what extent these barriers have been affected by the project • The extent of land-related disputes in the community, how these disputes are resolved, and how and to what extent these disputes have been affected by the project

Note: R1 is Round 1 of data collection (latter half of 2017); R2 is Round 2 of data collection (May 2021–March 2022).

2. Data analysis

We developed a qualitative data collection protocol for each type of interview and respondent; although the protocols were tailored for each respondent type, they all covered similar topics related to the research questions. We will follow four steps to analyze the data (Creswell 2009):

- **Management of raw data.** Managing raw data consists of organizing unaltered data into meaningful units of analysis (that is, from audio files to transcripts). During this step, we will review all data and eliminate any that are incomplete or not useful to our analysis.
- "**Chunking" and initial coding**. Often referred to as data reduction, this step will allow us to read the transcripts several times and obtain a holistic sense of the data. We will develop a detailed initial coding scheme—a set of themes we might encounter in the interview and focus group transcripts, which are mapped to the research questions and logic model (for example, initial themes might include "implementation challenges," "tenure security," and "private sales transaction time"). We will also begin developing memos to accompany the broader coding themes.
- **Detailed coding**. This step will involve refining the coding scheme and recoding data as we look at the data in greater depth. We will use NVivo software to review and code the transcripts based on the initial codes developed during the "chunking" process. We will expand and refine these codes during the coding exercise and subsequent analysis of the coded transcripts in an iterative process as additional themes emerge.
- **Data interpretation and writing**. The analysis of the coded transcripts will involve triangulating the findings across stakeholders to highlight mechanisms, context, and similarities and differences in perspectives. The baseline and final reports will use the qualitative data to fully explore the implementation and results of the LMI project.

3. Timing

We will conduct two rounds of data collection for the qualitative study—the first was completed in late 2017 and the second will be conducted from May 2021–March 2022.[18] The first round captured information about implementation as well as early results in the final two quarters of 2017. This data collection process took place close to the end of the compact and enabled us to obtain reflections on implementation when it was close to completion but while implementing stakeholders (implementing contractors, MCA-CV, and MCC resident county mission staff) were still available.

We will conduct the second round of qualitative data collection in May 2021–March 2022, four years after the completion of implementation on Sal and three years on the other targeted islands. We used findings from the first round of qualitative data collection to identify key areas of focus for this final round of data collection.

[18] The second round of data collection was originally planned for 2020 but was delayed to May 2021–March 2022 because of the COVID-19 pandemic and availability of inter-island flights.

D. Multisite case study of large commercial investments

Large tourism-related commercial investments on undeveloped land inside ZDTIs on the four targeted islands (primarily hotels and condominiums) are an important focus of the evaluation because a reduction in transaction time for these investments is a critical component of the project logic that is expected to drive the improvement in economic outcomes. However, our evaluation must consider that there is likely to be only a limited number of these large-scale investments. The multisite case study approach addresses this fact by considering each investment as a "case" and examining it in detail, enabling us to describe each unique investment experience while still drawing broad conclusions across investments and islands.

More specifically, we intend to analyze data that we will collect on all or most large tourism-related commercial investments in the years leading up to the intervention and immediately following it, as well as investments proposed but not completed over these periods. We will collect this information from the investors themselves, as well as from the ZDTI investment agencies and the *Patrimonio* (which is involved in some steps for ZDTI investments). This information will include both quantitative and qualitative data about each investment. Our analysis for this component of the evaluation will focus on understanding the extent to which the project made the process of large commercial investments on undeveloped land easier and quicker, the extent to which it affected investment decisions, and investors' experiences with these investments more broadly. The qualitative data from the ZDTI investment agencies and the *Patrimonio* will also provide information on the investment process and context more broadly.

The evidence from the multisite case study will complement the data analysis in large commercial investments and tourism that we plan to conduct as part of the pre-post analysis (described in Section B of this chapter). This evidence will include changes in the number and size of these investments inside the ZDTIs, the percentage of ZDTI land area developed, and various tourism-related outcomes. Combined, these two components of the evaluation will enable us to provide comprehensive information on changes in large commercial investments on the targeted islands over time, and the likely contribution of the project to these changes (related to research questions 1, 2, 4, and 9); we will also be able to explore issues around land expropriation and land disputes with existing occupants within the ZDTIs (related to research question 3).

1. Data sources

The multisite case study design will draw on quantitative and qualitative data that we will collect through interviews with investors and potential investors, as well as with the ZDTI investment agencies and the *Patrimonio*. We plan to conduct one round of data collection from these stakeholders to capture experiences in the years leading up to the intervention and to capture experiences in the years immediately following it. Table IV.4 summarizes the data sources and provides the areas of focus for each source. These data sources include the following:

- **Large commercial investors currently making or having completed investments (4).** Through the ZDTI investment agencies, we will identify all relevant large commercial investments (hotels and condominiums) in the years leading up to the intervention and the years immediately following it. We will identify up to four investors for interviews. If more

than four are available, we will use the following selection criteria to ensure that we capture a broad range of cases: (1) island (covering all four targeted islands, if possible), (2) location within the island (covering various parts of the ZDTIs), (3) type of investment (hotel or condominium) and investor, (4) size of investment, and (5) current status of investment (completed or in process).

We will conduct in-depth interviews (in person or via Skype or telephone) with corporate or individual investors responsible for the investment decisions and for implementing the selected investments. These interviews will focus on the motivation for making the investment, their experience with the investment process, and their expectations for the future of their investment. We will also collect some quantitative information enabling us to describe the investment (for example, its timing, location, type, and size, and whether the investor is foreign or domestic), as well as information on transaction time—a critical input to the ERR model.

- **Large commercial investors that withdrew from investments (4).** We will also identify all large commercial investments for which an investor expressed interest to the investment agencies but then withdrew. We plan to interview up to four of these investors, using similar criteria to those described above to select the cases, if needed. These interviews will focus primarily on investors' experience with the investment process and their reasons for withdrawing. We will collect basic quantitative information to enable us to describe these investments.
- **Large commercial investors who expressed interest and started the process but stalled or have not fully completed the investment (4).** We will identify up to four large commercial investments for which an investor initiated the process of purchasing ZDTI land and was either in the process of acquiring the land or stalled awaiting approvals. We will include four of these investments, using similar criteria to those described above to select the cases. These interviews will focus primarily on investors' experience with the investment process and the reasons for delays in completing the purchase process. We will collect basic quantitative information to enable us to describe these investments.
- **Investment agencies (CVI and SDTIBM) (4).** We will conduct interviews with staff from CVI and SDITBM to gather information on the identification of ZDTI land occupants for land expropriation and any related disputes, and how this has been affected by the project; the processes of investing in the ZDTIs and documentation related to the processes and transaction times for specific investments; their experiences with the specific investments selected above; the environment for ZDTI investments more broadly; and expectations for the future development of the ZDTIs.
- **The *Patrimonio* (1).** Interviews with staff from the *Patrimonio* will focus on their role in the ZDTI investment process and how the relevant steps were affected by the project.

Table IV.4. Plans for data collection for the multisite case study

Data source	Type of data	Number	Illustrative areas of focus
Large commercial investors who completed or are completing investments	Interviews	4	• Motivation for the investment • Experiences with and perceptions of the investment process • Transaction time to register and complete the investment • Other challenges related to making and completing the investment • Profitability of investment (including hotel occupancy rates or condominium unit sales) and expectations for the future • Confidence in land tenure security and post-investment land conflicts (if any) • Perceptions of other investors' experiences in Cabo Verde • Likelihood of making future investments in Cabo Verde
Large commercial investors who expressed interest in investments but withdrew	Interviews	4	• Motivation for considering the investment • Experiences with and perceptions of the investment process • Reasons for withdrawing from the investment • Perceptions of other investors' experiences in Cabo Verde • Likelihood of making future investments in Cabo Verde and changes that could encourage such investments
Large commercial investors who initiated the purchase process but are stalled in the process	Interviews	4	• Motivation for considering the investment • Experiences with and perceptions of the investment process • Reasons for delays • Perceptions of other investors' experiences in Cabo Verde • Likelihood of making future investments in Cabo Verde and changes that could encourage such investments
ZDTI investment agencies (CVI and SDTIBM)	Interviews	2	• Strategic vision and planning for ZDTI development • Identification of ZDTI land occupants for land expropriation and any related disputes, and how this has been affected by the project • Process for large-scale investments in ZDTIs and how this has been affected by the project • Extent to which LMITS is being used, and why • Other changes to the investment environment and/or process over time • Experiences with specific investments included above • Valuation of ZDTI land values, and changes over time • Remaining barriers to large-scale investments in ZDTIs • Extent of ancillary investments in ZDTIs (restaurants, services, and so on) • Expectations for future development and tourism growth in ZDTIs
Patrimonio	Interviews	R2: 1	• Role in land expropriation in the ZDTIs, and how expropriation has been affected by the project • Role in large-scale investments in ZDTIs and how the relevant steps have been affected by the project • Extent to which LMITS is being used, and why • Other changes to the investment environment and/or process over time • Experiences with specific investments included above • Valuation of ZDTI land values, and changes over time • Remaining barriers to large-scale investments in ZDTIs

Data source	Type of data	Number	Illustrative areas of focus
			• Extent of ancillary investments in ZDTIs (restaurants, services, and so on) • Expectations for future development and tourism growth in ZDTIs

2. Data analysis

The data analysis will seek to describe the individual investments (cases) and draw broader lessons across the cases. To describe the cases included in our sample, we will fully describe the characteristics of each investment and summarize the key findings related to it, organized by topic area (for example, motivation for the investment, experiences with the investment, other challenges, and so on). To draw broader lessons about these investments and how they might have been affected by the project, we will draw on the full set of interviews and use a similar approach to that described in Section C to analyze the data. Specifically, we will use qualitative analysis software to systematically code data and sort the data to identify key themes and patterns in the responses.

3. Timing

We will conduct one round of data collection for the multisite case study from May 2021 through March 2022. Interviews will focus on investments in the pre-intervention period—those initiated before 2016 on Sal and in the few years before 2017 on the other islands[19]—and in the post-compact period. It will also capture investments initiated up to four years post-compact on Sal and up to three years post-compact on the other islands. Given the scale of these investments, some of them might not be completed at that point; however, we will still gather important information by focusing on the initiation of these investments and their registration in the formal land system.

E. Monitoring indicators and data quality review

In this section, we discuss our approach to conducting a data quality review of the LMI project monitoring indicators. Most of these indicators were generated by local Cabo Verdean governmental and nongovernmental entities, although Mathematica generated a handful of them. We also describe how we ensured data quality for the proposed primary data collection, which Mathematica and a local data collection partner collected.

1. Monitoring indicators

MCC has identified a set of monitoring indicators to track the changes associated with the LMI project. The indicators were reviewed and updated with local stakeholders in a monitoring and evaluation workshop led by MCC on April 21, 2016. The workshop identified a handful of

[19] There may be some ambiguity about the timing of investments relative to implementation because implementation on each island was gradual and occured over a period of more than a year. Our current understanding is that no ZDTI parcels were registered in LMITS before 2016 on Sal and before 2017 on the other islands; therefore, we intend to use these years as a broad cutoff for the pre- and post-intervention periods. However, we will have to examine the timing of each investment and assess on a case-by-case basis whether it could have been affected by the intervention.

indicators that Mathematica would be responsible for generating at baseline and post-compact: (1) non-ZDTI property values, (2) average annual investment by households in property improvements and assets, and (3) change in time for key property transactions (in days and percentage). However, because the revised evaluation design does not include a survey with a representative sample of households on the targeted islands, we do not expect to be able to provide the necessary information on household investments or non-ZDTI property values.[20] However, we will be able to estimate the change in transaction time for land sales, as described in Section B of this chapter. The remaining indicators are expected to be available through surveys conducted by INE, as well as administrative data maintained by various entities (such as the ZDTI investment agencies, the *Conservatoria*, and NOSi).

Mathematica conducted a data quality review of the monitoring indicators included in the final MCA-CV monitoring and evaluation plan to ensure the reliability of the data reported to MCC.[21] The scope of the review for the selected indicators depended on our access to the actual data sets as well as the data collection and sampling protocols used to generate the indicators. We completed the initial data quality review in 2018, and the report was approved by MCC. Mathematica did not conduct a second data quality review for two reasons: (1) The quality of the data reviewed in the first round was high, and we agreed that the quality of the data was likely to remain the same; and (2) Cabo Verde changed its data privacy laws and INE no longer shares raw data sets, nor does it allow people outside of its organization to come to their offices to physically view the data. We conducted the review process and produced the report in 2018, soon after the end of the compact.

2. Data quality assurance for primary data collection

The success of the evaluation depends on the collection of high-quality primary data, which will consist mainly of qualitative data. We engaged a local Cabo Verdean data collection firm to conduct the data collection, although Mathematica staff will lead select key informant interviews. Close interaction with and oversight of the local firm throughout the data collection process will ensure data quality.

The specific quality control measures that we implemented include the following:

- Setting interviewer recruitment and evaluation standards
- Actively participating in interviewer training sessions
- Conducting piloting activities to ensure the effectiveness of field protocols
- Providing strong oversight of the participant recruitment process
- Observing fieldwork and instituting rigorous independent field oversight activities
- Providing feedback to interviewers to improve data collection

[20] We might be able to provide some information on property values through secondary data from real estate agents, and newspaper advertisements, but it might not be representative of the non-ZDTI areas.

[21] During the compact period, MCA-CV was responsible for reporting the monitoring indicators to MCC; in the post-compact period, INGT is collecting and reporting the indicators to MCC.

- Reviewing a sample of qualitative data collection transcripts and verifying the transcripts against the recordings from the interviews
- Establishing step-by-step data collection protocols for transaction time and administrative data
- Training the data collection team on using the SurveyCTO program to collect archival data
- Validating the administrative data from LMITS at each institution

F. Limitations and challenges

Although our evaluation design offers the best possible opportunity to inform the key research questions, it also faces some limitations and challenges:

- **Absence of a counterfactual.** Our evaluation design does not include a counterfactual—that is, we cannot determine how outcomes would have evolved in the absence of the project. As a result, we will not be able to attribute any changes identified in our pre-post analysis to the impact of the project. To do so would require a rigorous impact evaluation, which we have determined is not feasible in this context. To the extent possible, we will draw on the qualitative components of the evaluation to assess (in a non-rigorous way) how the project might have contributed to the estimated changes.
- **Lack of quantitative data on household-level outcomes.** The proposed design does not enable us to produce quantitative estimates of changes in key household-level outcomes such as tenure security or investments in land and property. To do so, we would have to conduct surveys with a representative sample of affected households (or affected subgroups of particular interest) before and after the project. We determined that such a "pre-post" approach was not feasible in this context for two main reasons. First, we would have limited ability to statistically detect the expected changes in key outcomes without a relatively large sample size, which would be prohibitively costly (and would still not provide rigorous evidence of the impacts of the project, given the absence of a counterfactual). Second, because implementation of Activity 2 was already complete on Sal and underway on the other targeted islands as of 2017 (when the first version of this report was published), we would have had to capture pre-project information retrospectively; therefore, it would have been challenging to obtain accurate pre-project measures of key household outcomes such as tenure security. Therefore, we decided to focus our analysis on changes based on a pre-post time period using secondary data, even though this means that we will not be able to estimate changes for some key household-level outcomes.
- **Incomplete geographic coverage on targeted islands.** The implementation was never expected to reach the whole island of São Vicente. In addition, even in areas in which implementation is fully completed, there might be a large fraction of parcels remaining in *diferido* status (for example, in Sal, 20 to 30 percent of parcels were in this status at the end of implementation). Although for some of these areas parcels status may be resolved post-implementation, it is possible that a substantial fraction will remain unresolved for some time. (Registration is compulsory, but owners might not be motivated to resolve outstanding issues until they must transact on the property.) This possibility suggests that any changes in outcomes estimated through our pre-post analysis might be dampened because these data

will be at the island level, but it could be that only part of each island will have been reached in practice. It will therefore be important to document the fraction of parcels reached by the project on each island, the areas in which they were located, and the fraction of parcels remaining in *diferido* status by the end of the evaluation (using data from LMITS).

- **Small number of large commercial investments.** Large commercial investments are significant ventures that require substantial time and resources. Therefore, we might not be able to identify many of these large investments for the multisite case study design, even with a post-compact period of several years. This possibility implies that the pre-intervention and post-compact samples may be heterogeneous in factors that may shape specific investment experiences (for example, different investment agencies and/or ZDTIs, sizes, and types of investments), making it hard to draw broad conclusions about changes over time. If there are few of them, our approach will be to attempt to capture the universe of these investments while being aware of this limitation in interpreting the results.

- **The COVID-19 pandemic.** In March 2020, the COVID-19 pandemic led to a series of delays when the United States and countries (including Cabo Verde) closed their borders to limit the impact of the virus. The pandemic led to a 14-month delay in the local data collection firm's ability to collect data in Cabo Verde and Mathematica's ability to travel to Cabo Verde to collect administrative data. The pandemic may contribute to several limitations, including the ability of households to register their properties and make investments in improvements between March 2019 and the present. The time delay may have both positive and negative effects. Although the longer time period allowed NOSi to improve the LMITS and for more islands to adopt the modules, it may also lead to recall challenges among people who were engaged in the MCC LMI activities. Household members who updated their land status may now have a more limited recollection of the process and outcomes of their participation in the activities.

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V. EVALUATION ADMINISTRATION AND MANAGEMENT

We will carefully administer and manage the proposed evaluation to help ensure its success. In this chapter, we summarize several administrative and management issues relevant to conducting the evaluation.

A. Institutional review board

Mathematica prepared and submitted institutional review board (IRB) applications for each round of data collection. We used Health Media Lab as our IRB, based on our positive experience with it on previous MCC projects. For each IRB application, we submitted a set of required documents, including a research protocol providing details of the study and data collection activity, copies of all data collection instruments, and a completed IRB questionnaire that summarizes the key elements of the research protocol and plans for protecting participants' confidentiality. The qualitative data collection instruments we prepared and shared with the IRB included consent statements approved by MCC that guarantee the confidentiality of respondents.

B. Data access, privacy, and documentation plan

We will follow MCC's latest guidelines regarding access to qualitative transcripts, which could include providing transcripts for restricted use access by approved researchers. If so, the transcripts could only be made available in a form that is consistent with the confidentiality guaranteed in the respondent consent statements included in the qualitative data collection instruments and approved by the IRB.

C. Dissemination plan

Mathematica will present the final evaluation findings in person to MCC and stakeholders in Cabo Verde after completing the final report for the evaluation (see Section E for a detailed timeline). The presentations will be valuable both for disseminating the findings to relevant stakeholders and gathering feedback from them to revise the draft report. In addition, we will collaborate with MCC and stakeholders to identify a variety of forums—including conferences, workshops, and publications—to share results and encourage donors, implementers, and policymakers to integrate the findings into future programming.

D. Evaluation team

Mathematica's evaluation team brings together strong design, data collection, and evaluation expertise. Our core team includes Dr. Audrey-Marie Moore, Dr. Evan Borkum, and Ms. Irina Cheban. Dr. Moore serves as project director, providing leadership and technical support for all aspects of the project, and is leading the qualitative study and multisite case study of large commercial investments. Ms. Cheban is leading the pre-post data analysis and data quality assurance review with quality oversight from Dr. Borkum. Dr. Borkum will lead the review of the ERR and recommendations for updates based on the findings of the evaluation. Dr. Nancy Murray, who was the project director during the design phase of the evaluation, serves as a senior advisor, providing technical guidance as needed and reviewing key project deliverables. Our team continues to draw on content expertise from Mr. Robbert Farber, our expert consultant in land reform.

E. Evaluation timeline and reporting schedule

As mentioned in Chapter IV, the proposed evaluation timeline includes post-compact data collection through 2021—two years longer than initially planned. This timeline provides an additional two years for key outcomes to manifest, which adds value to the pre-post analysis, qualitative study, and multisite case study.

The evaluation activities are clustered into two time periods (Figure V.1), corresponding to the two rounds of qualitative data. We collected the first round of qualitative data in the final two quarters of 2017. We produced a data quality review report in 2018. We will collect the second round of qualitative data in May 2021–March 2022, together with the data for the pre-post analysis covering the period from 2012 to 2020. We will finalize the final evaluation report, which will integrate findings from all evaluation components, by June 2022, again incorporating feedback from stakeholders after the presentation of the draft report.

Table V.1. Evaluation timeline and reporting schedule

Year	2016		2017				2018				2019				2020				2021				2022	
Quarter	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2
Implementation[a]																								
Sal[b]																								
Boa Vista, São Vicente, and Maio																								
Data collection																								
Qualitative data (qualitative study/multisite case study) and data for trend analysis																								
Reporting																								
Evaluation reports																								
Data quality review report																								
Presentations																								

[a] Compact ended in November 2017.

[b] Implementation on Sal began in Q3, 2014.

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APPENDIX A:

FEASIBILITY OF AN IMPACT EVALUATION

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During our April 2016 mission to Cabo Verde, we discussed with MCC and local stakeholders the possibility of conducting an impact evaluation of Activity 2 of the LMI project, focusing on urban households. Any potential impact evaluation would have to focus exclusively on urban areas rather than on ZDTIs and/or rural areas, because ZDTIs and rural areas affected by the project lack a plausible comparison group and would have too small a sample size to enable us to statistically detect impacts in any case. In particular, we would not be able to identify a comparison group for the ZDTIs because there are a limited number of these areas and they vary substantially from one another, and the relatively few large commercial land transactions expected over the period of the evaluation would limit statistical power to detect impacts. We would also not be able to identify a plausible comparison group for treated rural areas because of the variation in the type of agriculture, access to water, and other characteristics of rural areas; the number of rural households is also small, so statistical power would be limited.

We explored two potential ideas for an impact evaluation in urban areas: (1) a within-island design and (2) a between-island design. The within-island design would focus on urban areas of Sal (the main urban areas that will be affected by the project), and compare parcels that were and were not already registered in the *registo predial* prior to the project. Because we would expect the effects on parcels that were already registered to be limited, we could estimate impacts by comparing changes over time for these two types of parcels. The between-island design would estimate impacts by comparing changes over time in urban areas on Sal (mainly the city of Espargos), which are being affected by the project, to urban areas on São Vicente (mainly the city of Mindelo), which will not be affected.

There are two main conditions required for either of these designs to be feasible. First, to produce unbiased impact estimates, it is necessary to assume that the proposed treatment and comparison groups for a given design (registered and nonregistered parcels on Sal, or parcels in urban areas of Sal and São Vicente) would have had similar trends in key outcomes in the absence of the project. Although this assumption cannot be verified directly, it is more likely to be valid if the treatment and comparison groups are similar in the pre-project (baseline) levels and trends of key outcomes and related characteristics. Second, for an impact evaluation to be informative for MCC and other stakeholders, the expected impacts on key outcomes in the time frame of the evaluation need to be sufficiently large to detect.

To help determine the feasibility of these designs, we therefore complemented our in-country discussions by examining the baseline similarity of the proposed treatment and comparison groups using available data. We also drew on the existing literature on the impacts of land regularization programs (discussed in Chapter III) to assess the impacts that we might expect. In this appendix, we summarize our findings, and explain our ultimate recommendation not to pursue an impact evaluation.

A. Baseline similarity

To assess baseline similarity for the within-island design, we used data collected from a representative sample of urban households in Sal by INE in 2011 to compare parcels that were

and were not registered in the *registo predial*. We found some substantial differences between the two types of parcels in the available measures.[22] Specifically, the registered parcels were:

- More likely to be formal housing (a house or apartment and not an informal structure) (100 percent versus 81 percent)
- Occupied by those with higher monthly incomes (30 percent higher, on average) and expenditures (24 percent higher, on average)
- More likely to have piped drinking water (40 percent versus 25 percent)
- More likely to be occupied by those with a secondary-level education (20 percent versus 7 percent)

These findings are consistent with our discussions with local stakeholders during our mission, which suggested that the parcels that were and were not pre-registered are typically very different—especially in terms of the occupants' socioeconomic status—and are probably not comparable. Overall, we believe that there is sufficient evidence to rule out this design, as it would not provide unbiased impact estimates given concerns about a lack of similarity between the treatment and comparison groups.

To assess baseline similarity for the between-island design, we examined aggregate *Inquérito Multi-Objectivo Continuo* 2014 data from INE to compare households in Sal and São Vicente. Although these data are at the island level, they should be a close approximation to the urban areas on these islands, where the vast majority (more than 90 percent) of the population resides. These data are not ideal for assessing baseline similarity for an impact evaluation, because they do not include variables related to land rights or more detailed variables related to socioeconomic status, such as income. Nevertheless, we examined the differences in available variables related to housing and socioeconomic status, and found that there were differences for some of these variables but not for others. For example, compared to São Vicente, Sal has:

- A similar population growth rate, but a smaller population (32,000 versus 80,000)
- A higher percentage of apartment-type housing (43 percent versus 27 percent)
- Slightly higher access to piped water (67 percent versus 60 percent)
- Slightly higher access to flush toilets (91 percent versus 83 percent)
- Higher Internet access (45 percent versus 34 percent) and cell phone ownership (81 percent versus 69 percent)
- Similar literacy rate and average years of education
- Similar access to electricity

[22] This analysis excluded about 39 percent of parcels—almost all occupied by renters—for which the registration status could not be determined as part of the survey. The remaining parcels were split almost equally between those that were and were not registered in the *registo predial*.

These findings suggest that we might not expect major baseline differences between urban areas on the two islands in the key outcomes of interest, although they do not guarantee it. However, some stakeholders expressed a concern that the two islands might still differ in important unobservable characteristics and underlying trends in key outcomes (for example, the growth in tourism), which could lead to biased impact estimates. To proceed with this design, we would have to assume that this was not the case. This assumption might be plausible if we could show baseline similarity across a broader range of land-related outcomes and related socioeconomic characteristics at baseline, using data that we would collect as part of the evaluation. We would also be able to overcome some degree of baseline differences by conducting household-level matching, provided these differences were not too large. Even then, however, we would not have sufficient retrospective data to show similarity in pre-project *trends* in key outcomes prior to the project, which was an important concern raised by some stakeholders given different growth patterns on the two islands in recent years.

B. Expected and detectable impacts

We examined the existing literature on land regularization programs to get a better sense of the potential impacts on the key outcomes of interest for an impact evaluation (these are linked to the first three research questions in Chapter IV): (1) tenure security, (2) investment, and (3) property prices. The literature (which we reviewed in Chapter III) includes relatively few rigorous impact evaluations of these programs, and we recognize that any impacts are likely to be context-specific and could vary in other settings. Nevertheless, the literature does provide some useful information on the impacts we might expect for these outcomes:

- **Tenure security.** The literature emphasizes that the effect of land regularization programs on beneficiaries' tenure security is likely to be limited if their perceived security prior to the program was already high. From discussions in Cabo Verde, our understanding is that perceived tenure security in urban areas was relatively high prior to the program, on average. In particular, many urban parcels that are not already registered in the *registo predial* are registered in the *registo matricial* for property tax purposes, which confers a relatively high degree of perceived security. In addition, the 2011 data in urban areas of Sal suggest that very few respondents (less than 1 percent) had recently been or were currently concerned about being involved in a property dispute. Although this is not an ideal measure of perceived tenure security, to the extent that the two are correlated, it suggests that pre-project tenure security was high. Overall, it seems unlikely we would observe large impacts on the tenure security of the average household in urban areas of Sal.
- **Investment.** The literature suggests that there are two main mechanisms through which impacts on investment might occur: increased perceived tenure security and increased access to credit. As mentioned above, the increase in tenure security is likely to be limited here, so the first mechanism is unlikely to play a major role. For the second mechanism, the literature suggests that land titling does not typically improve access to formal credit, except possibly for wealthier households (although most of the studies related to credit are in rural areas). This is consistent with what we heard anecdotally from local stakeholders: individuals with sufficient income to be eligible for credit are typically middle- or upper-class professionals who already have a land title (or can obtain one easily), whereas individuals without a title would not have sufficient income to qualify for a loan even if they became titled. Overall, although some studies have found large impacts on investment in informal urban areas

relatively soon after titling (for example, a two-thirds increase in housing investments within one to four years reported by Field [2005]), we might not expect the same in this setting.

- **Property values.** There is some evidence in the literature that titling can be correlated with substantial increases in property values (on the order of 25 percent) soon after the provision of formal titles. However, almost all these studies rely on self-reported measures of property prices, which may be inaccurate. Accurately measuring property prices would be a major challenge for an impact evaluation.

Overall, applying the findings from the literature to this context suggests that the expected impacts are small and would be challenging to detect as part of an impact evaluation.[23]

C. Recommendation

Based on the information presented in this appendix, we do not recommend moving forward with an impact evaluation. The only potentially promising approach is the between-island design. However, this design has some risks given the limited available data to assess comparability before the study, as well as stakeholder concerns about unobserved differences (especially differences in trends) between Sal and São Vicente. In addition, the impacts on key outcomes seem likely to be small for the average household in urban areas of Sal, and the ability of an evaluation to detect them would be limited. Therefore, an impact evaluation would result in limited learning for MCC, the GoCV, and the field more generally, and would not justify the additional costs required. Thus, instead of an impact evaluation, we are recommending a performance evaluation, as described in the body of this report.

[23] An added challenge in detecting impacts is that that some parcels in the treatment sample might remain in *diferido* status and might not be formally registered at the end of the evaluation period. Specifically, even though registration is compulsory, some households might not resolve their *diferido* status and complete registration until they need to transact on the parcel. Although the fraction of parcels that will remain in this status is unclear, this would effectively dilute the treatment, making it even less likely that we would observe detectable impacts.

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APPENDIX B:

EVALUATION CHANGES MEMO

Memo

To: Shauna Clarke

From: Audrey Moore

Date: 1/25/2022

Subject: Revisions to the CV Land EDR

The Millennium Challenge Corporation's (MCC) $17.3 million Land Management for Investment (LMI) project in Cabo Verde ended on November 30, 2017. As the independent evaluator for the project, Mathematica is conducting a mixed-methods performance evaluation to examine changes in key outcomes before and after the project, an implementation study to understand the how and why of changes that occurred, and case studies to understand investor decision-making. In preparation for the endline evaluation, this memo summarizes our proposed revisions to the Evaluation Design Report (EDR), accounting for several significant recent global developments and lessons learned from conducting remote data collection on other evaluations. In the rest of this memo, we summarize recent events that may affect the LMI logic model (Section A) and then present the revisions to the evaluation design (Section B).

A. Effects of the COVID Pandemic

The LMI project logic model posits that investments in new, national, and legal frameworks that support and protect land rights, clarification of boundary rights, and the development of an electronic land management system will increase the tenure security of individuals for whom land tenure security was low before the project. Over time, confidence in the new land registration system reduces transaction time, leading to improvements in the formal land market, improved municipal taxes, and increased land investment and utilization of ZDTI commercial land. In the end, the changes contribute to increased income from tourism and high land values.

The COVID-19 pandemic has impacted the land sector in several essential ways. The first cases of COVID-19 were detected in Cabo Verde in March 2020. As cases increased, the Government of Cabo Verde shut down travel to the islands, essentially ending tourism for nearly nine months. The shutdown sent adverse spillover effects into many upstream sectors, including construction, foreign direct investment in the hotel sector, and commercial businesses. Between March 2020 and September 2021, economic activity in Cabo Verde is estimated to have contracted by nearly

14.8 percent[24] and sent more than 100,000 people into poverty. While the pandemic doesn't directly affect land tenure or the functioning of the new electronic management system, it may have indirect effects including, (1) the population's ability to buy or sell land due to lack of income; (2) inability of foreign investment firms to travel to CV, slowing the decision-making process on the purchase of investment properties; (3) slower tourism due to the lack of both international and inter-island flights; and (4) higher land prices due to the higher costs of materials. These factors may affect our ability to see contributions to increased income and land value in Cabo Verde.

B. Revisions to the EDR

Mathematica adjusted our evaluation design based on the effects of the pandemic and lessons learned over the past 18 months of remote data collection. The changes to the EDR include the following items.

1. **We will conduct a pre-post analysis of key outcomes rather than a trends analysis for the evaluation.** Mathematica changed the design to a pre-post analysis in 2017 (pre-COVID) because we determined it would be difficult to interpret the data during the project implementation period. The targeted population received extra support from project staff and teams at the different government agencies to register their property during the project. These were conditions that would not continue post compact. The pre-post design allows us to look at outcomes before and after the intervention and see if the establishment of LMITS and the boundary and rights clarification processes outcomes such as the time required to buy and register property and land values.
2. **We detail our approach to measuring transaction time.** Mathematica developed a detailed approach to measuring transaction time following several pre-pandemic visits to the municipal, notary, and conservatoria offices in Cabo Verde.
    a. **For Municipal Land sales.** We will attempt to collect 30 transactions from the municipality and 15 transactions from the registry per year in Boa Vista, Maio, and São Vicente and 40 transactions from the municipality and 20 transactions from the registry per year in Sal (which has a larger volume of transactions).
    b. **For private land sales**. We will attempt to collect 30 transactions from the notary and 15 transactions from the registry per year in Boa Vista, Maio, and São Vicente. We will also try to collect 40 transactions from the notary and 20 transactions from the registry per year in Sal**.**

[24] https://www.worldbank.org/en/news/press-release/2021/09/09/the-covid-19-pandemic-has-posed-unprecedented-challenges-to-cabo-verde-s-economy-and-exposed-vulnerabilities

c. **Before traveling to each island**. We will work with NOSi and local, island-based technical teams at each institution to extract data from each module of the LMITS 2 system. When the data is unavailable in the system, our data collection team will visit each institution on the four target islands and three non-target islands and attempt to collect the data from paper records in the archives. We will use the SurveyCTO program to collect archival data.

d. **Non-target islands.** In the original evaluation design report, Mathematica noted that we would include three non-target islands if time and resources allowed. We will visit the non-target islands to examine how the land registration systems, including transaction time, are similar or different among targeted and non-targeted islands.

3. **We eliminated focus group discussions with household members in favor of individual household interviews.** The household focus group protocols deal with potentially sensitive themes such as the ability of women to get their names on titles, perceptions of land tenure and relationship status, and conflict. Based on Mathematica and MCC's collective experience, we were concerned that women might be reluctant to give free and honest answers to questions if they were in a group setting. To improve the quality of our data about project contributions to improved land tenure security, we decided to conduct 72 individual interviews instead of the focus groups.
4. **We changed the case study groupings to include investors who initiated a land purchase but are stalled due to legal or financial challenges.** During our initial interviews in 2017, we heard that some investors would initiate a purchase process through the tourism investment firms (e.g., CVTI, SVBTM) and remained stalled in negotiations for several years due to conflict and boundary clarification or settlers on the land. Some investors canceled their purchase process, while others remained motivated to work through the land issues. We would like to understand the motivations that helped them stay the course compared to investors who decided to move on to other investments.
5. **We conducted a mix of virtual and in-person interviews.** We interviewed staff from the municipality, notary, and conservatoria remotely in May-June 2021 to try and reduce recall bias and help us understand the status of the LMITS system in Cabo Verde. Once the pandemic restrictions eased, our data collection company began traveling to other islands to conduct in-person interviews with stakeholders and populations not conducive to remote interviewing strategies.
6. **Delays in the collection of the endline.** The second round of data collection was initially planned for 2020 but was delayed to May 2021–March 2022 because of the COVID-19 pandemic and the availability of inter-island flights. While the delay in data collection may add recall bias to the qualitative data, it allowed more time to pass, enabling our team to examine the longer-term status of the LMITS system and its sustainability. The one-year delay also allowed us to collect additional administrative data (2020), which adds rigor to the pre-post analysis.

7. **Elimination of a second data quality review.** Mathematica and MCC agreed to eliminate a second round of the data quality review because the first review showed that the data INE and the INGT collected was high quality, and Cabo Verde passed new privacy laws that make it difficult for people external to INE to review raw data.

Table 1 summarizes the main changes to the qualitative sample.

Table I. Sources for qualitative data collection

Data source	Type of data	Originally planned Number	Updated Number	Islands
Municipalities	Interviews	4	4	All four targeted islands
Conservatoria	Interviews	7	7	All four targeted islands and three non-targeted islands
Notaries	Interviews	12 by type of notary	up to 12, by type of notary	All four targeted islands
Patrimonio and Ministry of Rural Development	Interviews	2	2	National level
NOSi	Interviews	1 per round	1 per round	National level
Implementing contractors (including gender specialists)	Interviews	8	4 in R1, 1 in R2	All targeted islands
MCA-CV and MCC	Interviews	6	5	National level
Real estate agents	Interviews	6	6 (3 per island)	Sal and Boa Vista
Individuals in married or RUDF relationships	Interviews	Four focus groups (1 female and one male group per island; 10-12 participants per group)	24	Sal and Boa Vista
Individuals in UUDF relationships	Interviews	4 Focus groups (1 female and one male group per island; 10-12 participants per group)	24	Sal and Boa Vista
Local business owners	Interviews	Four focus groups (2 groups per island; 10-12 participants per group)	12	Sal and Boa Vista
Individuals who received a public deed through the LMI project	Interviews	Four focus groups (1 group per island; 10-12 participants per group)	24	All targeted islands
Small farmers in rural areas	Interviews	2 Focus groups (6-8 participants per group)	8	Boa Vista

Note: R1 is Round 1 of data collection (latter half of 2017); R2 is Round 2 of data collection (May 2021–March 2022).

cc: Jennifer Lisher, Irina Cheban

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